DEC 14 1927

Medical Lib.

Illinois Medical Journal

OWNED AND PUBLISHED BY THE MEDICAL PROFESSION OF ILLINOIS

Office of Publication 155 N. Ridgeland Ave., Oak Park, Illinois

Vol. LII, No. 6 OAK PARK, ILL., DECEMBER, 1927 $3.00 a Year

CONTENTS

Editorials (For Titles See Extended Table of Contents) 429

ORIGINAL ARTICLES

More Accurate Methods of Measuring X-Ray Dosage. *Roswell T. Pettit, M. D., Ottawa, Ill.* 453

An Ethical Consideration of the Indications for Cesarean Section. *Gilbert Fitz-Patrick, M. D., Chicago* 458

The County Tuberculosis Sanatarium a Unit of the General Hospital. *Cecil M. Jack, M. D., Decatur, Ill.* 462

Chloroma. *Richard C. Gamble, M. D., Chicago* 466

Diabetic Coma. *G. D. Hauberg, M. D., Moline, Ill.* 471

The Mechanism of Normal Intraocular Pressure. *Michael Goldenburg, M. D., Chicago* 474

Coordinating Radiology with Other Specialties. *Walter G. Bain, M. D., Springfield, Ill.* 479

The Women's Auxilliary of the State Medical Society. *Mrs. G. Henry Mundt, Chicago* 482

Acute and Chronic Appendicitis. X-Ray in Diagnosis of Chronic Appendicitis. *Benjamin Chapman, M. D., Chicago* 484

Clinical Value of Liver Function Tests. *Harry J. Isaacs, M. D., Chicago* 490

Gangrene of Scrotum Due to Self-Induced Rupture of Urethra. *Bernard P. Conway, M. D., and Edwin W. Hirsch, M. D., Chicago* 493

Spontaneous Ovarian Cyst. *R. Carter Crain, M. D., Chicago* 495

Continued on Page 14

SEVENTY-EIGHTH ANNUAL MEETING, CHICAGO, MAY 8, 9, 10, 11, 1928

Entered as Second-Class Matter July 21, 1919, at the Post Office, Oak Park, Illinois, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1102, Act of October 3, 1917, authorized July 15, 1918.

MILWAUKEE SANITARIUM

Wauwatosa, Wisconsin

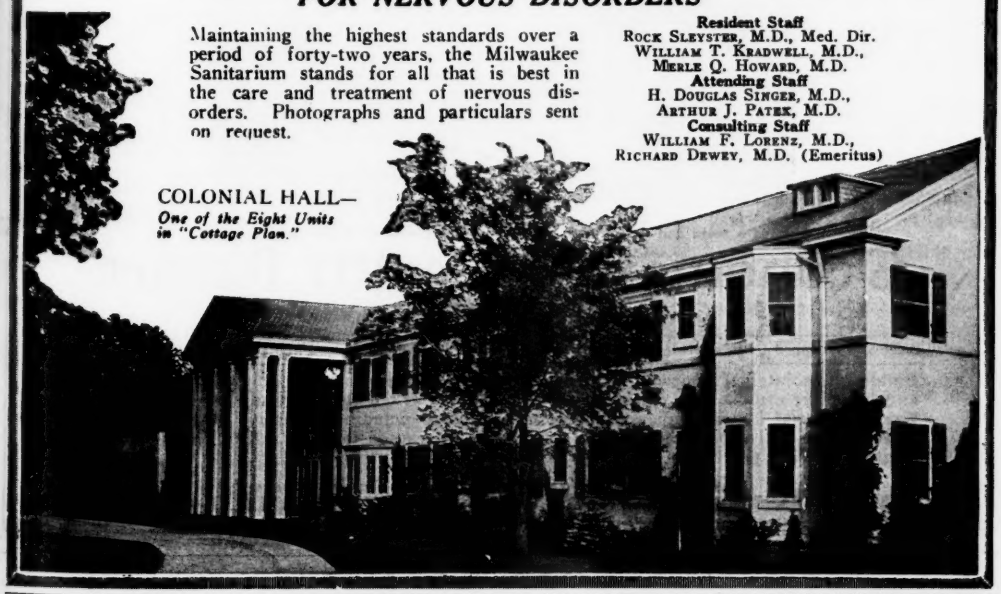
(Chicago Office—1823 Marshall Field Annex. Wednesdays, 1-3 P. M.)

FOR NERVOUS DISORDERS

Maintaining the highest standards over a period of forty-two years, the Milwaukee Sanitarium stands for all that is best in the care and treatment of nervous disorders. Photographs and particulars sent on request.

Resident Staff
ROCK SLEYSTER, M.D., Med. Dir.
WILLIAM T. KRADWELL, M.D.,
MERLE Q. HOWARD, M.D.
Attending Staff
H. DOUGLAS SINGER, M.D.,
ARTHUR J. PATEK, M.D.
Consulting Staff
WILLIAM F. LORENZ, M.D.,
RICHARD DEWEY, M.D. (Emeritus)

COLONIAL HALL—
One of the Eight Units in "Cottage Plan."



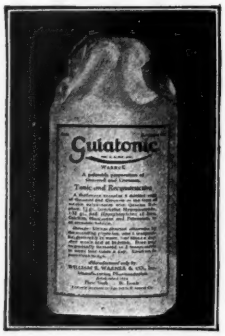
"The *Advertising Pages* have a *Service Value* for the READER that no *truly Progressive Physician can afford to overlook.*"

When the Enfeebled Stomach Revolts

at drugs and emulsions, and yet a reconstructive tonic is essential, prescribe Guiatonic.

A carefully balanced general systemic tonic, Guiatonic possesses the unusual additional advantage of being acceptable to the most delicate digestive system, and stimulating the processes of food assimilation.

Indicated wherever a tonic is needed.

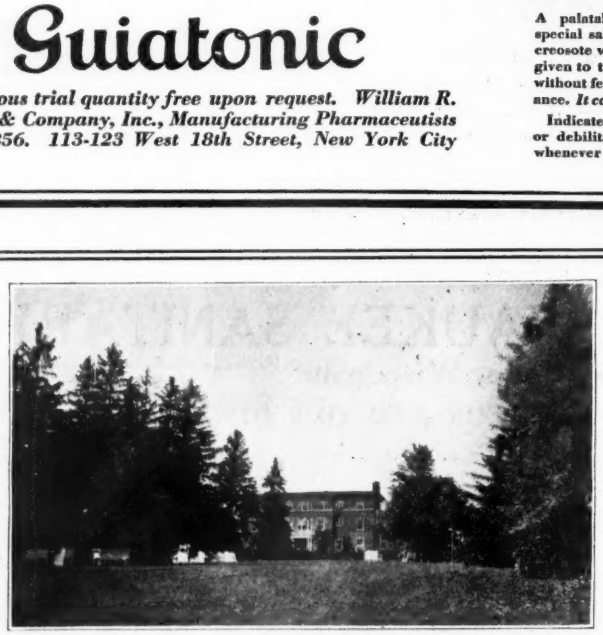


A palatable preparation of special salts of guaiacol and creosote which may be freely given to the weakest patient, without fear of gastric disturbance. *It contains no narcotics.*

Indicated in all depressed or debilitated conditions, or whenever a tonic is required.

Guiatonic

A generous trial quantity free upon request. William R. Warner & Company, Inc., Manufacturing Pharmaceutists since 1856. 113-123 West 18th Street, New York City



On main line C. M. & St. P. Ry., 20 miles west of Milwaukee.

Oconomowoc Health Resort

OCONOMOWOC, WISCONSIN

Built and equipped in 1907 for the specific purpose of treating NERVOUS and MILD MENTAL DISEASES

Building absolutely Fireproof. Non-institutional in appearance, accommodations modern and homelike atmosphere prevails. Sixty acres of park with beautiful views over lakes. Every essential for treating nervous cases provided, including extensive baths and separate occupational departments under supervision of trained teachers. Number of patients limited assuring personal attention from the staff.

ARTHUR W. ROGERS, M.D., Physician in Charge
JAMES C. HASSALL, M.D., Medical Supt. FRED. GESSNER, M.D., Asst. Physician

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. LII | OAK PARK, ILL., DECEMBER, 1927 | No. 6

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1926-1927

PRESIDENT .....G. HENRY MUNDT, Chicago
PRESIDENT-ELECT.....JOHN E. TUITE, Rockford
FIRST VICE-PRESIDENT.....A. T. LEIPOLD, Moline
SECOND VICE-PRESIDENT.....A. G. BOSLER, Chicago
TREASURER.....A. J. MARKLEY, Belvidere
SECRETARY.....HAROLD M. CAMP, Monmouth

THE COUNCIL

D. B. Penniman,	1st District, Rockford	1929
E. E. Perisho,	2nd District, Streator	1929
S. J. McNeill,	3rd District, Chicago	1929
J. S. Nagel,	3rd District, Chicago	1928
R. R. Ferguson,	3rd District, Chicago	1930
Wm. D. Chapman,	4th District, Silvis	1928
S. E. Munson,	5th District, Springfield	1928
Chas. D. Center,	6th District, Quincy	1930
I. H. Neece,	7th District, Decatur	1928
Cleaves Bennett,	8th District, Champaign	1929
Andy Hall,	9th District, Mt. Vernon	1930
J. S. Templeton,	10th District, Pinckneyville	1930

EDITOR

CHARLES J. WHALEN.....25 E. Washington St., Chicago

GENERAL COUNSEL

ROBERT J. FOLONIE.....231 S. La Salle St., Chicago

PUBLICATION COMMITTEE

J. W. VAN DERSLICE, *Secretary*.....
.....155 N. Ridgland Ave., Oak Park

MEDICO-LEGAL COMMITTEE

J. R. BALLINGER, *Chairman*..2724 West North Avenue, Chicago
GEORGE H. WEBER, *Secretary*.....Peoria

EDUCATION COMMITTEE

MISS JEAN MCARTHUR, *Secretary*
185 N. Wabash Avenue, Chicago

SCIENTIFIC SERVICE COMMITTEE

JAMES H. HUTTON, *Chairman*, 6056 Cottage Grove Ave., Chicago
HAROLD M. CAMP, *Secretary*.....Monmouth

State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

Send original articles, advertising copy, cuts and all communications relating to advertising to Dr. Charles J. Whalen, c/o Illinois Medical Journal, 185 N. Wabash Ave., Chicago.

Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 1618 Juneway Terrace, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

Subscription price of this Journal to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $3.50 per year for all foreign countries included in the postal union. Canada, $3.25. Single current copies, 50 cents.

Editorial

NEXT ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

MAY 8 TO 11, 1928

NEW STEVENS HOTEL

CHICAGO

The seventy-eighth annual meeting of the Illinois State Medical Society will be held in Chicago, May 8 to 11, 1928, in the new Stevens Hotel, which is the largest hotel in the world. On account of the character of the conference next year, it is thought advisable to extend the time to four days instead of three days.

By advancing the date one week, to May 8, there will elapse one month before the meeting of the American Medical Association in Minneapolis.

As a combination clinical and scientific session, clinics will be held at the new medical units of the University of Chicago, of Northwestern University, and of the University of Illinois, and at the Cook County Hospital. All scientific and general programs will be at the Stevens Hotel.

Exhibits will be at the hotel, including many scientific displays and demonstrations, as attractive features.

Dr. Nathan S. Davis III has been selected as general chairman of the committee on arrangements. He has a group of men on various committees who are laboring to secure unusual results. Invitations will be sent to the physicians of states adjoining Illinois, such as Michigan, Wisconsin, Iowa, Missouri and Indiana, all adjacent to Illinois, and this insures a record-breaking attendance. General hospital clinics will be arranged for both Monday, May 7 and Saturday, May 12, and during the session for a full week of clinics.

Officers of the five sections are anxious to get in touch immediately with members from both the Chicago Medical Society and the downstate societies who desire to read papers at the meeting.

Section Officers for the Convention are:

Medicine:

J. L. Sherrick, Chairman, Monmouth.

N. S. Davis III, Secretary, 952 North Michigan Blvd., Chicago.

Surgery:

J. R. Harger, Chairman, 25 East Washington St., Chicago.

Earl D. Wise, Secretary, Champaign, Illinois.

Eye, Ear, Nose and Throat:

C. F. Yerger, Chairman, 4458 West Madison Street, Chicago.

Walter Stevenson, Secretary, Quincy, Illinois.

Public Health and Hygiene:

A. A. Crooks, Chairman, Peoria, Illinois.

E. W. Mosley, Secretary, 3325 Lincoln Avenue, Chicago.

Radiology:

Harold Swanberg, Chairman, Quincy, Illinois.

E. G. C. Williams, Secretary, Danville.

Early issues of the JOURNAL will detail the program for what will undoubtedly be a record maker in the history of State Society meetings.

A FEW FACTS ABOUT THE STEVENS HOTEL

The Stevens Hotel, which will be convention headquarters of the Illinois State Medical Society, May 7-11, 1928, is the world's largest and greatest hotel, occupying the entire block on Michigan Boulevard between Seventh and Eighth Streets; the hotel overlooks Grant Park and Lake Michigan, representing an investment of $27,000,000 in ground, structures and surroundings. There are 3,000 rooms each with bath, circulating ice water, closet, outside light and air.

The Stevens rises twenty-five stories above the ground with a four-story tower above and five basement levels below. Four entire floors are given over to public use and service. These contain dining rooms, restaurants, lobbies, lounge rooms, ball rooms and shops. The Stevens claims the largest and most beautiful ball room in the world, equipped with motion picture screen and every facility for dinners, meetings, dances and spectacles, including a theatrical dimmer board by which every conceivable lighting effect with use of colors can be produced. There are seven ball rooms in The Stevens Hotel and nine private dining rooms with seating capacity from twenty-five to one hundred in each. There are one hundred rooms on the fourth floor which can be used for committee meetings or displays and which range in seating capacity from twenty-five to one hundred fifty.

During the first month of its operation a banquet was served to 4,700 people at one seating in record time. The power plant of The Stevens is the largest privately owned utility of its kind in the world and is equipped with generators capable of producing 3,200

Stevens Hotel, Headquarters for the 1928 Annual Meeting of State Society

electrical horsepower—sufficient for the industrial and domestic needs of a community of 60,000 people.

The Stevens has the world's largest check room with accommodations for 3,200 guests in addition to restaurant and various floor check rooms which furnish accommodations for several thousand more.

The house surgeon has a completely equipped two-ward hospital and operating room.

The Stevens has its own ice cream factory, its own laundries, its own candy factory, printing establishment and power plant. And also, it has a circulating library of 25,000 volumes.

The site alone cost $6,000,000.

The carpets cost $600,000.

Sixty carloads of mattresses are used in the hotel and four carloads of glassware.

The silverware filled three freight cars, the hollowware alone weighing 43,576 pounds.

A 101-foot reservoir stores water for bathing and drinking purposes.

From the roof garden promenade one can see the cliffs and dunes of Michigan.

The lounge is carpeted with the three largest Saruk rugs in all the world, and is furnished at a cost of more than $200,000.

The grand ballroom can seat 4,000 guests.

An army of 2,500 employes is necessary to keep up the service.

Fourteen passenger elevators will carry an aggregate of 224 guests at a time.

The telephone switchboard system is capable of receiving and transmitting calls sufficient for a city of 15,000.

The refrigerating plant has a capacity of 300 tons of ice daily.

The ice cream factory can produce 120 gallons of ice cream an hour, while the candy factory can satisfy the appetites of 15,000 small boys.

The laundry, operated on a weekly schedule, could care for the wants of a community of 60,000 people.

DOCTORS WISHING TO READ PAPERS AT THE NEXT ANNUAL MEETING OF THE STATE SOCIETY

Any member of the state society who wishes to present a paper before any of the sections at the annual meeting of the State Society to be held at the Stevens Hotel, Chicago, May 8 to 11, 1928, is requested to communicate with the secretary of the section to which his subject logically belongs. The section secretaries are as follows:

Medicine:

N. S. Davis III, Secretary, 952 North Michigan Blvd., Chicago.

Surgery:

Earl D. Wise, Secretary, Champaign.

Eye, Ear, Nose and Throat:

Walter Stevenson, Secretary, Quincy.

Public Health and Hygiene:

E. W. Mosley, Secretary, 3325 Lincoln Avenue, Chicago.

Radiology:

E. G. C. Williams, Secretary, Danville.

PUBLISH YOUR GOOD PAPERS

The ILLINOIS MEDICAL JOURNAL is the official organ of the Illinois State Medical Society. The officers, the council and the editor desire to make this magazine of the greatest value to each member. Interesting papers presented before each county society should be sent to the JOURNAL for publication, and each county society secretary should make it his personal business to report to the editor of the JOURNAL the happenings at each meeting. Invariably there is something of interest and assistance to doctors everywhere that takes place at these gatherings. If this is done, the JOURNAL will gain in interest to its membership societies and to subscribers in other states. A statement as to when and where the paper was read and the name and address of the author should accompany these contributions, and they should of course be typewritten and either *double* or *triple* spaced.

Some excellent papers submitted for publication have lacked the author's name, an omission that has made publication impossible. Doubtless science has lost many valuable contributions from just such trivial negligence. Will not all the county secretaries and also the individual members keep this in mind so that the ILLINOIS MEDICAL JOURNAL can be of the greatest possible service to the medical profession?

TESTIMONIAL FOR DR. ZEUCH

EDITOR OF HISTORY OF MEDICAL PRACTICE IN ILLINOIS WILL BE TENDERED DINNER DANCE, JAN. *13, 1928*

The Northwest Branch of the Chicago Medical Society and the Physicians Fellowship club will give a dinner, Jan. 13, 1928, in honor of Dr. Lucius Zeuch, who is editor of the first volume of the History of Medical Practice in Illinois. This will be at the Logan Square Masonic

Temple at 6:30 p. m. Dr. Glen Frank, president of the University of Wisconsin, will be the speaker. Dr. Zeuch performed a monumental task in his compilation of this history, devoting to it many years of his life and much of his money at great sacrifice of his health and his practice. John E. Koons is president of the Northwest Branch and Dr. Goldye Hoffmann, 7 West Madison Street, Chicago, is secretary. Reservations for places at the dinner, priced at $2.50 per person, should be made to Dr. Hoffman.

Dr. Goldye Hoffman,
Chairman Entertainment Committee,
Northwest Branch, Chicago Medical Society,
7 West Madison Street, Chicago, Ill.

Dear Doctor:

Please reserve for me ..... seats at the dinner that will be given at 6:30 p. m., January 13, 1928, at the Physicians' Fellowship Club, in honor of Dr. Lucius Zeuch, editor of the History of Medical Practice in Illinois. As the dinner is priced at $2.50 per plate, enclosed find my check for..... Dollars, $.....

Name .....

Address .....

.....

(Please fill in distinctly name and address.)

REPORT OF EDUCATIONAL COMMITTEE

September 1 to November 30, 1927

1,510 press articles were released to newspapers in Illinois. These included the regular health column used by 52 papers over the signature of the local county medical society, articles on diseases prevalent in certain communities, and news items regarding the regular and special medical meetings held in the state.

50 press articles were written and censored by the Educational Committee.

305 Physicians spoke before lay organizations representing all sections of Illinois. These physicians brought the message of preventive medicine to universities, high schools, teachers' institutes, women's clubs, all types of men's service clubs, Parent-Teacher Associations, Y. M. C. A.'s, Y. W. C. A.'s, business and industrial groups.

Several organizations in the state have asked for a health program once each month. The public is becoming conscious of the fact that if they wish competent and authoritative speakers to talk on subjects pertaining to health, application should be made to the Educational Committee of the Illinois State Medical Society.

30 radio talks were given over stations WGN, WJJD, and WLS. Ten minute talks are given every Tuesday morning at 11:45 over WGN.

29 moving picture films were ordered for hospitals, schools, and churches, also to illustrate special talks given before men's and women's clubs.

Thousands of posters and educational pamphlets were secured for distribution at special meetings.

A Colored Speakers' Bureau has been organized which will enable the Committee to schedule speakers for the colored men's and women's clubs in Illinois.

The Committee assisted three communities with Toxin-Antitoxin educational campaigns.

The Committee cooperated with other agencies during National Education Week. On Health Day talks were given by Chicago physicians before 8,000 Chicago High School students, and newspaper articles were released to one paper in each county of the state.

Physicians scheduled to speak before lay audiences may be able to secure outlines and reference material through the office of the Educational Committee.

THE WORK OF THE EDUCATIONAL COMMITTEE IS BRINGING RESULTS

Illinois Council of Parent-Teacher Associations

360 N. Michigan Avenue, Chicago, Illinois

October 31, 1927.

Dr. R. R. Ferguson,
Chairman Educational Committee,
Chicago.

Dear Dr. Ferguson:

In compliance with your request I am sending you an excerpt from Mrs. Buhlig's Conference Message. If this does not fully answer, please let me know. I quote as follows:

"There are certain things I wish I might say to you this fall. A discussion of the Summer Round-Up, its value, and the methods and procedure to be followed in cooperation with other

members of the community was one such subject. For three years Illinois Parent-Teacher Associations have been promoting this work. They are asked to promote it again next year. We feel we have demonstrated the value of sending children to school 100% physically fit. The caution sounded by our National Chairman, Miss Mary Murphy, at our Quincy meeting last Spring should be repeated. She urged associations to include the physicians, dentists, and nurses (where the latter are used), in the Summer Round-Up Committees Our organization at its September Board Meeting went on record as recognizing that the work of physicians in public health is basic; that physicians' cooperation be solicited; and that the Summer Round-Up work be encouraged on the basis of physicians and dentists receiving remuneration except in the cases of indigent families As many of you know the ethics of the Medical Profession has been contrary to anything approaching the free practice of medicine except for the indigent poor. The Illinois Medical Society went on record concerning this in 1924 and again in 1927 and probably did so long before that. The Summer Round-Up as an educational demonstration should appreciate the fact that the services of physicians and dentists are their means of livelihood just as the attorney's profession and the business man's business are their means of livelihood. Association leaders should approach these professional men, when asking for cooperation with this fact in mind. A representative of our organization sitting in council with representatives of the Illinois Medical Society, Illinois Dental Society, and the Illinois Federation of Women's Clubs, as an Advisory Council to the Child Hygiene Division of the Illinois Department of Health has been able to make progress in this direction, has given us an appreciation of the objectives of these other organizations, and should lead to profitable cooperation in statewide movements. Before time for the next registration for Summer Round-Up work I feel sure our organization will have definite suggestions to give concerning methods to be presented to secure the cooperation of the organized physicians in the County. The Board of Managers ask our associations to report fully to our state organization any matter concerning which an accord has not been reached with the local group of physicians or the County Medical Society, in the hope that through conference between our state organization and the Illinois Medical Society such matters may be adjusted to the mutual satisfaction of all concerned. In other words, this vast project which involves the members of two splendid organizations, which needs the sympathetic and appreciative cooperation of both organizations, must be carefully planned in order that there may be no injustice to any one."

Signed "BLANCHE A. BUHLIG."

Very truly yours,

(MRS. IRENE M. SYMONDS),

Acting President.

PHYSICIANS AND SURGEONS ECONOMIC LEAGUE FAILS TO PROVE ITSELF THE SOLUTION OF PROBLEMS OF THE MEDICAL PROFESSION

Another unique though inappropriate attempt to exploit the medical profession appears now in the guise of a "protective organization" or "collection agency," that will be known as the Chicago Physicians and Surgeons Economic League.

According to circularization and organization stationery, two of the officers are physicians. The business manager, and apparently the actual working head is "I. Braverman."

The *Chicago Tribune*, in a news story of Nov. 18, 1927, accounts Mr. Braverman as having been under indictment in various labor sluggings and sets forth other data from which the logical mind can deduce only that this league to "better the physician's tasks," make his life easier and help him collect his bills will in reality be a Tom Sawyer proposition for the organizers. Further, that it is a bold step to unionize the doctors at their own expense.

A preliminary initiation fee of $5.00 and a subsequent fee of $2.00 per capita each month or a minimum of $24 per annum paid into the league by Chicago physicians alone would amount to $100,000 per annum from the Chicago Medical Society alone, and at least $150,000 per annum from the doctors in Cook County in addition to the initiation fee of at least $30,000 that

would be turned over to "I. Braverman, business manager."

At least there is nothing to indicate that anybody else would be the custodian of the fees, nor to show how their disposition will be controlled any more than there is any statement made as to who originated the league, nor where the money comes from that promotes it. Dr. M. J. Sullivan, president, addressed the Council at its last session and said that beyond its officers he could not name its sponsors or its originators. Dr. Sullivan is president, George M. Redmond is secretary, and I. Braverman is business manager.

Offices are named as 542 South Dearborn Street.

So far as the collection agency feature is concerned, it may be remarked in passing that this advantage, so-called, can be only "pure bunk." Already the Chicago Medical Society has arrangements with a collection agency that handles the work so well only one complaint has been received during the past year; that protects its clients from suit and that leaves the Chicago Medical Society itself through its council as final arbiter with exclusive jurisdiction in all disputes. Further this agency now employed is under agreement to be absolutely bound by the decision said council shall render, without review by any other agency or public tribunal. This agency works under a fee, nothing like that approximated at by the most conservative estimate by the new "league." In fact, this agency gets only a percentage fee.

This league can not in any way seem to be merely a new fashion of organizing the profession. Necessary though such organization is and often as it has been urged, undoubtedly any such organization should come from the physicians themselves and not from outside sources, especially one with such generous "initiation" fees.

Such conditions of statement of fact lead the logical mind to draw only the premise that this is a lay organization, the creature of some unknown group that will make a pawn of the medical profession, as well as become a drain upon its finances to no beneficent end at all. While organized ostensibly to relieve those grievances in professional life under which physicians labor, with the collection of delinquent bills a specific rainbow of promise, there is no suggestion incorporated in the pleas that indicates the fashion in which this new organization would endeavor to correct many evils. It has all the traits of any advertised panacea, and it is doubtful whether any more than for tuberculosis there can be found any magical formula of administration that will overcome the abuse of medical charities, difficulties of collections, attempt at state medicine, and similar obstacles to the progress of medical science. Elimination of these handicaps is a promise held out as bait to get membership in the "Economic League." This in the face of the fact that the organized profession in Chicago and Cook County as elsewhere has been giving and is now bending its attention to the solution of these annoying problems. Can any new organization not emanating from this organized profession as a whole hope to outstrip in efficiency those men whom the problem most intimately concerns and whose officers can be depended upon at all times to act with proper discretion and purpose for the safeguarding of the rights of the ethical profession and the public welfare? Further, these officers of the recognized medical organization are responsible to this organization itself, made up as it is of physicians and surgeons and not an organization upon whose executive committee lay persons play so important a part, who are not responsible to anyone and who will handle about a quarter of a million of dollars paid in by doctors.

Speed of achievement promised by the spokesmen for this new league calls to mind the adage that "Haste makes waste." It is doubtful that this league can use any shortcut methods to bring about these needed reforms that would be acceptable to the ethical medical profession. Let Dr. Sullivan be quoted again as stating that not only did he not know the originators of the league, but that he did not know who appointed him, nor who was back of it.

In the face of these facts it would appear to be highly important that the medical profession should unite in vigorous opposition to this movement that pretends to be able to take from the shoulders of the medical profession all its burdens from an ultra altruistic intention and with an omnipotent perspicacity.

There would seem to be no reason for membership in this league.

MENACE OF OVERSTANDARDIZATION OF CARE OF THE SICK AND HOSPITALIZATION AND EXPLOITATION OF THE DOCTOR

Evils of the modern trend of overstandardization in its menacing effect upon public welfare through the deterioration of the care of the sick find drastic arraignment at the hands of Dr. Malcolm L. Harris, chairman of the Judicial Council of the A. M. A., in an article on "Medical Economics" published in the *Journal A. M. A.*, under date of Nov. 26, 1927.

Careful study of the entire article by Dr. Harris is recommended. A few of the salient points made by the doctor are contained in these paragraphs:

"It should be the duty of all physicians who are actively concerned with hospital work to see that the primary purpose of the hospital—namely, the care of the sick—is not diverted or minimized by the prevailing passion for so-called standardization, which seems to have obsessed so many organizations and institutions today. Hospitals are being flooded with elaborate questionnaires, some of them asking questions which no self-respecting institution would answer, such as the names and salaries paid its superintendent and other employees, and the names and particular religion of the members of the staff, and are being overrun by young inspectors who have no knowledge of, or experience in, the management of hospitals, each with an arbitrary yardstick with which to measure and rate the hospital according to the dominant idea of the institution doing the rating. One will rate the hospital on the basis of its physical equipment; another on its scientific paraphernalia; a third on the percentage of autopsies held on the dead; a fourth on the number of beds and its facilities for training interns; a fifth on the willingness of the members of the staff and all others practicing in the hospital to sign an iron-clad stultifying oath concerning fees, which it is ackowledged cannot be enforced and which, as is well known, is constantly being violated by a large percentage of its own members, and so on down the list, while no one seems to have grasped the idea of rating hospitals according to the amount of good they are doing in the relief of human suffering, having in mind the economic conditions of the community served.

Physicians must have strength of character enough to assert themselves in the management of hospitals. They must be imbued with the high ethical principles of the profession and see that all those who work with them are likewise ethical. This is a duty they owe to themselves, their profession, their patients and the public."

There are few physicians of standing who have not been gulled by lay organizations into giving technical information for some seemingly legitimate purpose, and who have not stood appalled when this information has risen to greet them in some unexpected place and in such distorted guise as to be hardly recognizable and to some extent, more or less to the doctor's own undoing

Upon this situation Dr. Harris wisely comments:

"Another source of economic loss to the profession is the selling of the physician's knowledge and skill to lay corporations organized for profit who resell the knowledge thus gained back to the patient at a much higher price Many physicians throughout the country by reason of their undue credulity and under the guise of altruism have been imposed on in this way and are now selling their services to a jobber to be resold. This is not only a direct financial loss to those engaged in the work, but a breach of the obligation which every physician owes to the profession as a whole, as it lessens the confidence which the people have in its ability, lowers its dignity, and detracts from its independence. The agitation which was raised against this practice a short time ago has already borne fruit, as one of the large insurance companies that formerly contracted with a corporation to do this work has now given it up and refers its policyholders to their family physician, where they belong, to make the periodic health examinations."

THE RISE AND FALL OF DISEASE IN ILLINOIS

The swing and lilt of above title might not at first glance be associated in the mind of the reader with a serious official publication. Nevertheless it is the title of an elaborate "Festschrift" published by the State Department of Health in honor of the 50th anniversary of the establishment of the State Board of Health, the predecessor of the present Department. The first volume,

just off the press, is a handsome quarto volume of 432 pages with highly calendered paper, numerous charts and tables, maps, and portraits of pioneer physicians and officers.

Volume 1 is divided into two parts, one describing health conditions in the "Illinois country" from the earliest times that any information is available to the year 1877; the second part continues the story from the establishment of the Board of Health in that year to date.

The material covering the early and late history was widely scattered and required strenuous research and difficult editing to adjust contradictory evidence. Zeuch's History of Medical Practice in Illinois, Ales Hrdlicka, Boggess, Quaife, Catlin, Rauch's Sanitary History of Chicago, Koehler's Annals of Health and Sanitation, Proceedings of the Illinois State Medical Society and numerous letters from early settlers yielded their treasures for a fascinating story.

The general freedom of the Indians from communicable diseases before the arrival of white settlers in numbers is assumed. Some authors claim that certain skeletons of the mound builders show evidence of syphilis but others dispute the claim. The general characteristics of the "regimes" of the mound-builders, Indians, the French-Canadian, Spanish and American are compared. Malaria was very prevalent from 1780 till 1870 in central Illinois, though exact statistics were not available. About 1850 the zymotics became prevalent and typhoid fever became the subject of lively debate among physicians about the same time, especially the relations between typhoid, other fevers and the dysenteries.

Part 1 closes with a special study of mortality in Chicago and Springfield previous to 1877, and brief references to Kaskaskia, Shawneetown and Vandalia. Census figures of population and principal causes of death for the decennial years from 1850-1880 are included.

Even in 1817 the third General Assembly of the *Territory* of Illinois had passed a law authorizing the establishment of medical societies to examine candidates for practice of medicine, Dr. George Fisher being speaker of the House, and Ninian Edwards, Governor. Again, in 1819, the first *State* Legislature enacted a similar Act which was repealed in 1821. Various attempts were made to secure an efficient law, especially after the organization of the Chicago Medical and Illinois State Medical Societies in 1850. All attempts failed until 1877, when the State Board of Health Act and the Medical Practice Act became effective.

Part 2 of volume 1 takes up the story at this point. The law thus placed upon the Board the duties of examining candidates for practice, supervising the control of communicable diseases as well as sanitation, the preparation and publication of vital statistics. But appropriations were so meager ($5,000 the first biennium) and the work of examining candidates so strenuous that only a beginning of the other duties was practicable for several years. Dr. John H. Rauch, member, president and secretary of the board, 1877-1891, accomplished wonders with his available resources and is remembered with affectionate regard by many old-timers who treasure his "John Hancock" on the permits issued by him. Dr. James A. Egan, secretary, 1897-1913, had the happy knack of inducing the legislature to loosen the pursestrings and was made "executive officer" of the board which added to the efficiency of action.

Dr. C. St. Clair Drake became secretary of the board, 1914-1917, and in the latter year, under the Lowden Civil Administrative Code, he became the first Director of the State Department of Health (1917-1921). As secretary of the old board he had adopted the budget system of appropriations and had reorganized the work, appropriations amounting to $166,000 in 1915. Moreover, the new Code established a separate Department of Registration and Education for the supervision of practice in medicine and other professions and trades. The first biennial appropriation was $443,212, for the Department of Health.

Nothing could be more magnanimous than the credit given the Drake regime in the book. He is credited with being a genius for educational propaganda, for organizing exhibits that popularized and sold the idea of health to the public, in unique ways. This credit is the more noteworthy as public officials at times are tempted to ignore or belittle their predecessors.

I am abusing no confidence in asserting that the book under consideration was edited by the present Director of Public Health, Dr. Isaac D. Rawlings, ably aided and abetted by Drs. Wil-

liam A. Evans and Gottfried Koehler and Mr. Baxter K. Richardson.

The only signed article in the book is the chapter on the "Smallpox epidemic of 1893-1895" by Dr. Arthur R. Reynolds, who was Commissioner of Health of Chicago at the time.

Every practitioner in the State knows in a general way how the work of the State Department of Health has developed and increased in recent years. It touches us all through local health boards or departments, but it is not always realized that the State Director is the power and mainspring that coordinates the whole works. We do not attempt to detail all the variety of effort that goes into it.

The Vital Statistics Law of 1915 was received with mixed feelings at first by the profession, but it enabled the State to be admitted into the U. S. Registration area in 1918 for deaths and in 1922, for births. The completeness of reports is steadily improving under Dr. Rawlings' guiding hand.

The Division of Child Hygiene, Division of Surveys and Rural Hygiene, State Laboratories, Hotel and Lodging House Inspection, Public Health Instruction, Social Hygiene, have all aided in placing Illlinois in the very front rank of healthful States. This is vividly illustrated by a tabulation from the U. S. Census Bureau showing that of all States of population of 4,000,000 or over, Illinois has had the lowest death rate for each of the past 6 years.

Special tables show the prevalence of communicable diseases and deaths for such recent years as statistics are available.

A chapter of "Auxiliary Health Agencies" is headed by the Illinois State Medical Society and it contains the full report of its Educational Committee for January to May, 1927.

Under "Summary and Conclusion" one of the editors attempted an "evaluation" of all the factors that have contributed to the great decreases in mortality from various diseases. But there is no law to prevent any reader from going over the evidence and revising the figures according to his own experience and qualifications.

Nor is giving credit necessary in detail. The splendid record reflects credit on all who shared in the effort. The State Department of Health naturally deserves the lion's share and the director as its guiding genius.

A discriminating review of the proper function of a health department as distinguished from the functions of all allied or independent agencies and a bird's eye glance at future activities closes the tale.

The foreword intimates that a second volume will contain chapters relating to the organization and development of municipal boards and departments of health. We shall await the appearance of that volume with pleased anticipation, in the hope that it will reveal treasures equal to the first. The general style of the work is that of an up-to-date text-book with a complete index which makes all the data readily available.

The fanciful title is justified.

LEADING PHYSICIANS BALK AT BEING EXPLOITED

Call Cigarette Advertising Using Their Prestige Pernicious and Unfair

Leading physicians throughout the country resent the implication that the medical profession has endorsed the preferential use of a certain brand of cigarettes as a cure or alleviative of throat irritation and for voice protection. In letters to the *Medical Review of Reviews,* which undertook a survey of leading physicians throughout the country to expose misleading advertising, physicians express their resentment and urge the public to be on its guard against accepting endorsements by a small minority as the authentic opinion of the 140,000 physicians of this country. The physicians among whom the survey was conducted were asked two questions by the *Medical Review of Reviews.* The first was: "Do you not agree with us that it is impossible for one cigarette to have any advantage over all others in regard to throat ease or irritation?" to which the answer was almost unanimously "yes." The second was: "Is it not your observation that there is no scientific reason for preference for any given cigarette and that any preference is on a taste basis?" to which the answer was almost unanimously "yes."

Among the statements of leading physicians were the following:

"I think this form of advertising is pernicious and unfair. There is no scientific basis for any

of the claims made for 'toasted' tobacco. In my own case, the Company advised me that I had written a favorable report of their cigarette. I do not remember ever having penned one word about it. Furthermore, I am a non-smoker. Your enterprising effort is a public service."—From Dr. I. W. Voorhees, 114 East 54th Street, New York City.

* * *

"I am very glad to add my endorsement to the movement for which you are responsible to acquaint the public with the negative side of the cigarette question. I wish to congratulate the editors on this worthy movement."—From Dr. Edward King, 707 Race Street, Cincinnati, Ohio.

* * *

"I received the document your referred to, but as I do not smoke I gave the box away and did not answer the questions. It sounded foolish to me. At a certain restaurant where several of us lunch I did not meet a doctor that had answered the questions and the whole business was treated as a joke by all."—From Dr. P. W. B. Wing, 1000 Watts Building, San Diego, California.

* * *

"The advertised toasted kind have always irritated my throat."—From Dr. William L. Ayres, Groton Building, Cincinnati, Ohio.

* * *

"They sent each physician a carton of cigarettes—gratis—with it the questions with return post cards, very convenient and no trouble, so they would get many favorable replies. I did not answer the questions but smoked the cigarettes and coughed as usual. It is not a scientific survey—far from it."—From Dr. William J. Mellinger, Granada Building, Santa Barbara, Cal.

* * *

"It is a herculean task to attempt to stay or modify this nefarious business and your are certainly to be congratulated for your attempt to do so."—From Dr. E. Eugene Holt, Sr., 722 Congress St., Portland, Maine.

* * *

"I have amused myself momentarily by reading the various testimonials, and have wondered how long it would be before the whole scheme would be labeled 'bunk'."—From Dr. F. J. Pierce, The Pueblo Medical Group, Thatcher Building, Pueblo, Colorado.

Signed MEDICAL REVIEW OF REVIEWS.

FIFTH NORTHWESTERN GRADUATE HONORED WITH LEGION CROSS

Dr. Isaac A. Abt, professor of pediatrics in the medical school of Northwestern University, who was awarded the cross of the Legion of Honor by representatives of the French government last week, was the fifth graduate of the medical school of Northwestern to receive this decoration. Dr. Robert Preble of the class of 1891, the same class in which Dr. Abt was graduated, Dr. George de Tarnowsky, 1900, Dr. Frank Billings, 1881, all of Chicago, and Dr. Charles Mayo, 1888, of Rochester, Minn., have been awarded this high honor by the French government for outstanding achievements in medicine, as has Dr. Hugh Patrick, emeritus professor of nervous and mental diseases in the medical school.—*Evanston News-Index.*

THE AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held in Detroit on September 12, during the session of the American Academy of Ophthalmology and Otolaryngology. One hundred and two applicants appeared for examination, with .107% failures.

An examination was held in Memphis on November 14th, preceding the session of the Southern Medical Association, with .127% failures.

In the course of the past year, three hundred and sixty-nine applicants have been examined.

In 1928, examinations will be held in Minneapolis, on June 11th, at the session of the American Medical Association, and in St. Louis, on October 15th, during the meeting of the American Academy of Ophthalmology and Otolaryngology.

Prospective applicants for certificates should address the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, for proper application blanks.

DR. W. P. WHERRY, Secretary. DR. H. P. MOSHER, President.

DAUGHTERS OF 1812 ASK ABOLITION OF CHILDREN'S BUREAU

Patriotic organizations of women in the United States composed of descendants of those men who fought in the wars of the Revolution and of 1812 are demanding abolition of the Children's Bureau of the Department of Labor, an

investigation of bureaucratic practices steadily involving the national government to its imminent destruction and a return to those principles upon which the world's greatest democracy was founded and prospered.

The Daughters of the American Revolution demand among other things that "all federal activities not necessary to the performance of national duties shall be discontinued as rapidly as possible, thereby restoring to our Nation, our States and our individual citizens the respective responsibilities imposed by the form of government for which our fathers fought, worked and died."

The Daughters of 1812 demand "abolition of the Children's Bureau in the Department of Labor as the peak of our bureaucratic despotism."

Nor is this all. The Sheppard-Towner Act and its interferences appear to be decidedly *persona non grata* among all of the patriotic organizations of women, according to their own pronouncements as published in the *"Woman Patriot"* (dedicated to Defense of Family and the State) under date of May 1, 1927. We quote:

DAUGHTERS OF 1812 ASK ABOLITION OF CHILDREN'S BUREAU

The National Society, United States Daughters of 1812, at their Associate Council at Washington, April 27, unanimously adopted the following resolution, which previously had been presented by their National Loyalty Committee, and favorably reported out by their Resolutions Committee:

WHEREAS, The National Society, United States Daughters of 1812, has duly considered the following facts, which are deemed to require the attention and action of our members:

1. The original settlers of this country came here to secure freedom from Old World oppression. They fought the American Revolution to crush the despotism and bureaucracy of a foreign ruler, who "erected a multitude of new offices" and "sent hither swarms of officers to harass our people and eat out their substance."

2. In the words of the Supreme Court of the United States (116 U. S. 616) quoting John Adams "the Child Independence was born," and "the first scene of the first act of opposition to the arbitrary claims of Great Britain" came when a distant parliament delegated power to bureaucrats to invade American homes, thus placing "the liberty of every man in the hands of every petty officer," as James Otis declared.

3. The American people are again subjected to a mounting bureaucracy, this time imposed by their own representatives under lobby pressure, comparable to the oppressive systems of Europe, and repugnant to or Constitution.

4. Again, as in the beginning of the fight for American freedom, the worst and most tyrannous form of bureaucracy is that which invades our homes and places our liberties at the mercy of petty tyrants.

5. The Children's Bureau, in the Department of Labor, is the peak of our bureaucratic despotism.

6. George III would be astonished at his own moderation could he read today the "expanding program" of that Bureau for centralized, uniform "standards" framed by petty officers of our Government, assisted by foreign advisers, for the minute regulation of the most domestic details of our private lives, and the education, care, work and even play of our children.

7. The Children's Bureau was established by Congress in 1912 merely as a fact-finding statistical agency. Congress had no idea of giving this Bureau administrative power to supervise our mothers and standardize our children. But this Bureau has persistently overridden the terms of its establishment, and has by overt act and propaganda and the initiation of laws to be administered by itself abused and exceeded the authority granted it by Congress, or permitted under the Constitution.

8. It has constantly disseminated Socialist, internationalist, un-American theories in its official reports and publications and striven to inject Socialism "into the flesh and blood of Americans," obedient to the instructions of Friedrich Engels (co-author with Karl Marx of the Communist Manifesto) to his disciple, translator and American lieutenant, Mrs. Florence Kelley (formerly Wischnewetzky) who initiated the establishment of the Children's Bureau and has led all the drives to increase its power.

9. It has striven for money and power until it has increased its first appropriation of $21,936 in 1913 to $1,300,000 for the current fiscal year (an increase of over 3,000 per cent) and its authorization to gather facts and statistics concerning children, with no administrative authority, has been stretched until, in 1922, the Chief claimed:

"The Children's Bureau has the whole field of child welfare and child care."

10. Further, in 1924, the Children's Bureau asked for "a full grant of power" by constitutional amendment, "to limit, regulate and prohibit the labor (paid or unpaid, in the home or on the home farm as well as factory workers or field hands) of all persons under 18 years of age," a power not asserted by any Government today save that of Soviet Russia.

11. In defiance of Civil Service ethics, the Children's Bureau operates as a political machine for its self-aggrandizement, and its Chief boasts of her "legislative technique," and teaches and leads "the final . . . assault upon the legislature or the Congress."

12. The Chief of the Children's Bureau, in her capacity as consultative member of the Executive Committee of the Women's International League for Peace and Freedom, is thus affiliated with the leading Communist-Pacifist women of Europe, and is consulted upon all the policies of that organization, whose dis-

loyal propaganda has previously been condenmned by the Daughters of 1812.

13. The Children's Bureau has advertised, indorsed and recommended, at public expense, a Communist book (Society and Motherhood) by the arch-communist, Alexandra Kollontay, former Soviet Commissar of Social Welfare, and at present Soviet Minister to Mexico, as:

"The most comprehensive study of maternity benefits and insurance which has yet appeared in any language is the volume by Mme. A. Kollontay. . . . Society and Motherhood." (Children's Bureau publication No. 57, page 175, Maternity Benefit Systems in Certain Foreign Countries.)

This indorsement of Kollontay's Communist book is still circulated by the Children's Bureau, at public expense, under an official frank certifying it to be "official business" of the Bureau, and has never been modified or withdrawn, despite public criticism on the floor of the Senate and elsewhere, since 1921.

14. The Children's Bureau is broadcasting other Socialist propaganda for maternity benefits, children's doles, government guardianship of children and compulsory registration of expectant mothers, hostile to American civilization, and intolerable to a self-respecting free people.

15. When established in 1912, the Children's Bureau was the first of its kind in the world, and admittedly "an innovation in government." Advocates of this bureaucratic noveltiy urged as precedent the Federal Bureau of Animal Industry in the Department of Agriculture, dealing with the breeding, care and feeding of hogs, cattle and sheep for slaughter. Backers of the Children's Bureau have so ceaselessly bracketed care of children and animals that Senator Smoot in 1924 asked advocates of Federal control of children, "Well, do you not think that there is quite a difference between an individual and a hog as to his constitutional rights?"

16. The only justification for such bureaucratic supervision of homes and children is in a Communist State, where governmental guardianship of all children is a necessary sequence to the Communist program to abolish marriage and destroy the family, as in Soviet Russia.

17. In the United States, the very existence of such a Bureau is an insult to American parents.

Now, therefore, be it

Resolved, By the National Society, United States Daughters of 1812, that we hereby respectfully petition the Congress of the United States to abolish and disestablish the Children's Bureau, by repeal of the Act of April 9, 1912, creating the Bureau; as there is no excuse for the continuance of this Bureau except to serve as a Socialist propaganda agency in the future as in the past;

That as all statistical reports of infant and maternal mortality and births are covered by the Vital Staistics Division of the Census Bureau; all educational matters relating to children are covered by the Bureau of Education; all public health activities of the Federal Government relating to children are better and safer in the hands of the Public Health Service; and all investigations and reports relating to minors in industry may be made by the Bureau of Labor Statistics, or other divisions in the Department of Labor, the abolition of the Children's Bureau is a reasonable and necessary step to prevent duplication and promote efficiency in the Government Service, as well as a positive step for the better protection of our homes and children.

WOMEN'S CONSTITUTIONAL LEAGUE OF MARYLAND

February 19, 1927

RESOLUTION FOR DISESTABLISHMENT OF CHILDREN'S BUREAU

"WHEREAS, We have previously gone on record as being in favor of the McCullough Resolution, which passed our last General Assembly, and which urged that useless bureaus in our National Government be disestablished.

"Therefore, we ask Congress to do away with the Children's Bureau in the Department of Labor, as being one of the most unjustifiable and unnecessary because it interferes in the private lives of citizens, and encroaches on the right of our State to direct its own public health work."

NORTH CAROLINA D. A. R. FOR ABOLITION OF CHILDREN'S BUREAU

These are some of the resolutions passed by the 27th Annual State Conference, North Carolina Society, Daughters of the American Revolution, at Wilmington, N. C.:

"WHEREAS, It has been proved beyond reasonable doubt that certain graduates, residents or associates of Hull House, Chicago, including persons of extremely communistic views, have persuaded Congress to create what was then supposed to be simply a $30,000 a year 'statistical agency,' but which was developed into an effort to obtain control of State health departments in matters relating to maternity, infancy and childhood; be it

"Resolved, That the Congress of the United States be respectfully urged by the North Carolina Society, D. A. R., in conference assembled to repeal the Act of 1912, creating the Children's Bureau, by the adoption of an amendment thereto declaring that the act creating the Bureau 'shall be of no force and effect after June 30, 1929.'"

"WHEREAS, In the past our Nation has been found at times unprepared for war, thus increasing our sacrifice of men and money, and

"WHEREAS, We believe that in order to preserve a permanent peace we must have adequate national defense; be it

"*Resolved,* That the National Defense Act, passed June 4, 1920, be supported in all its terms and a sufficient Regular Army, National Guard, Reserve Corps and Citizens' Military Training Corps be maintained at all times."

"WHEREAS, the National Board of Management, D. A. R., at the February meeting adopted unanimously with a rising vote the recommendation of Mrs. E. C. Gregory,. National Legislative Chairman and North Carolina Regent, that the study of the Constitution of the United States, our constitutional form of government, its institutions, and all pending and future constitutional legislation in the U. S. Congress be made the subject of Chapter Study during the year; be it

"Resolved, That the North Carolina Daughters of the American Revolution accept this suggestion and give study of the Constitution its proper place in the year's work."

"WHEREAS, An attempt is being made to influence public opinion by the use of seditious propaganda and the teaching of harmful doctrines in schools in this country; be it

"Resolved, That all teachers in schools and colleges of North Carolina should re-affirm loyalty to the policies of the founders of this country and continue to inculcate by precept and example the principles of Christianity, support the Constitution of the United States, including allegiance to the foundation principle of the common law, the right of private ownership of property, respect for the Flag, reverence for law and order, and undivided allegiance to the Government of our country, the United States of America; that no person should be employed, or elected or retained in any position or department of our schools and colleges, with or without compensation, who is not in complete harmony with the spirit, letter and best traditions of the Constitution of the United States of America and the Government which it sets up."

(Signed) MARGARET OVERMAN GREGORY,
(MRS. EDWIN CLARKE GREGORY),
State Regent of North Carolina and National Chairman of Legislation in U. S. Congress (D. A. R.)

MARYLAND D. A. R. FOR LOCAL SELF GOVERNMENT

The Annual State Conference of the Maryland Society, D. A. R., Hotel Belvidere, Baltimore, March 16, passed the following resolution:

"The Daughters of the American Revolution stand uncompromisingly for local self-government; therefore, be it

"Resolved, That we indorse Joint Resolution No. 13 introduced in our General Assembly which will cause our cooperation under the Sheppard-Towner Act to cease."

NEW JERSEY SOCIETY DAUGHTERS OF THE AMERICAN REVOLUTION

In Annual Convention Assembled, Old Barracks, Trenton, New Jersey

March 18, 1927.

PETITION TO CONGRESS FOR DISESTABLISHMENT OF CHILDREN'S BUREAU

WHEREAS, It has been proved beyond reasonable doubt by documentary evidence and public records that certain graduates, residents or associates of Hull House, Chicago, including persons whose extreme communism or pacifism has only recently been revealed to the American public, succeeded in 1912 in persuading Congress to create what was then supposed to be simply a $30,000 a year "statistical agency" with no administrative power whatever over our States and children, called a "Children's Bureau," and

WHEREAS, those in charge of the Bureau immediately began and still continue a campaign (by means of an amendment to our Constitution), for full administrative power over all American children by that Bureau, and

WHEREAS, this Bureau has sought and obtained under the so-called Maternity Act of 1921, through a system of Federal subsidies, an effective form of control over many State Health Departments in matters relating to maternity and infancy, and

WHEREAS, the American people, aroused by the attempt to put control of American youth into the hands of a radical bureau, secured the rejection of the extreme and revolutionary measure called the Child Labor Amendment, and Congress itself, with the approval of the President, has now recently repealed the Maternity Act, the repeal to take effect June 30, 1929; and three bills have recently been introduced in Congress, one in the Senate and two in the House, to abolish the Children's Bureau; therefore, be it

Resolved, That the Congress of the United States be and is hereby respectfully urged by officers and members of the New Jersey Society Daughters of the American Revolution, to repeal the Act of 1912, creating the Children's Bureau, by the adoption at an early date of an amendment thereto, declaring, as in the recent repeal amendment to the Maternity Act, that the Act creating the Bureau "shall be of no force and effect after June 30, 1929"; and be it further

Resolved, That a copy of this resolution be sent to the Daughters of the American Revolution National Chairman on Resolutions, urging her to present this, or a similar resolution to Continental Congress, April, 1927, for adoption.

Moved by MRS. THOMAS E. SCULL, *State Chairman of Legislation.*

Seconded by MRS. FREDERICK F. TIPSON, *Regent of Westfield Chapter.*

(Signed)

FLORENCE HAGUE BECKER (MRS. WM. A.), *State Regent.*

Resolutions Committee:
Chairman, MRS. WALTER H. ALLEN,
MRS. HENRY J. MILLER,
MRS. ALFRED C. BENEDICT.

SENTINELS OF THE REPUBLIC

The following resolution was adopted by the Sentinels of the Republic at Boston, February 26, 1927:

"WHEREAS, The Children's Bureau in the Department of Labor was established by the Act of April 9, 1912, for the purpose of investigating and reporting to the Department on matters pertaining to the welfare of children and child life; and

"WHEREAS, The Children's Bureau has not been con-

ducted according to the original design as an investigating agency simply, but has constantly sought and has been given or has assumed to itself further powers in respect to the enforcement of child labor laws, the Maternity Act and the proposed Child Labor Amendment, and

"WHEREAS, The annual appropriations for the Children's Bureau have increased by successive steps from $21,936 in 1913 to $1,313,000 in 1926; and

"WHEREAS, By the Act of January 22, 1927, Congress has provided that the Maternity Act 'shall, after June 30, 1922, be of no force and effect,' and

"WHEREAS, The duties heretofore imposed upon the Children's Bureau to investigate the questions of infant mortality, the birth rate, orphanage, dangerous occupations, accidents and diseases of children and all duties now imposed upon the Chief of the Children's Bureau by the Maternity Act or any other law may be suitably performed by the Public Health Service and the Chief thereof, and the duties imposed upon said Bureau to collect information concerning juvenile courts, desertion, employment and legislation affecting children in the several States and Territories may be suitably performed by the Secretary of Labor, and

"WHEREAS, The Sentinels of the Republic at their annual meeting, January 13, 1926, received the recommendation of their executive committee concerning certain legislative policies and adopted these policies, including the following with respect to bureaus and commissions:

"'We favor the abolition of useless governmental bureaus and commissions and those representing Federal activities in the field properly belonging to the States.'

"*Be It Therefore, Resolved,* That the Sentinels of the Republic, through their Board of Directors, hereby renew their statement of their position in favor of abolition of the Children's Bureau, and respectfully petition Congress that said Bureau be accordingly abolished.

(Signed)
ALEXANDER LINCOLN,
President.
THOMAS F. CADWALLADER,
Chairman, Executive Committee.
OSCAR LESER,
Chairman, Policy Committee.

Attest:
KATHERINE T. BALCH, *Secretary.*

THE WOMAN'S CONSTITUTIONAL LEAGUE OF VIRGINIA

For—Home and Constitutional Government
Against—Feminism and Communism

Newport News, Virginia

Mrs. W. B. Rucker, President.
Mrs. Edward B. Cameron, Secretary.
Mrs. W. C. Graham, Vice-President.
Mrs. James Williamson, Vice-President.
Anna Moon Randolph, M. D., Corresponding Secretary, Box 79, R. F. D. 4, Hampton, Va.

At a meeting of The Woman's Constitutional League of Virginia, held at Hampton, Virginia, March 31, the responsibility of the Children's Bureau for Socialistic propaganda and legislation was freely discussed.

The following resolution was unanimously adopted:

March 31, 1927.

PETITION TO CONGRESS:

Resolution for Disestablishment of Children's Bureau.

WHEREAS, The Children's Bureau of the Department of Labor, established in 1912, has been in operation for nearly fifteen years, an ample time in which to show its character, and

WHEREAS, The Children's Bureau has sponsored the Maternity and Infancy Act, which projects the power of the Federal Government into the affairs of the States, under a 50-50 Federal Aid scheme, and by thus disregarding State Rights which are guaranteed to the people under the Ninth and Tenth Amendments to the Constitution, there is being brought about a revolution in the form of Government of the United States which abrogates the freedom of the people in the various States to conduct their affairs as they will, and

WHEREAS, The Children's Bureau disregards the Fourth Amendment to the Constitution (which insures the "Right of Castle") by investigating welfare workers who invade the privacy of American homes, and

WHEREAS, The Children's Bureau seeks to take the control of children away from their parents by the Child Labor Amendment, which has been rejected by a majority of the States and has aroused the hot resentment of fathers and mothers against this drive for power by this Bureau, and

WHEREAS, The Children's Bureau has published, at the expense of the tax payers, "Bureau Publication No. 60—Standards of Child Welfare," showing the influence of foreigners who were invited to attend a Conference on on Child Welfare Standards in Washington, May, 1919, thus giving "Proof of the new international sense of responsibility for Child Welfare"; and they further agreed upon such "Tentative Child Welfare Standards as appear in this book." Upon investigation these "Standards" are found to be in full harmony with the communistic idea that the child is a ward of the State. Their maternity benefits, or pensions for Mothers, are the same as advanced by the former Soviet Commissioner for Welfare, Alexandra Kolontai, in her booklet, "Communism and the Family," and

WHEREAS, The Children's Bureau has been and is now used as an avenue for the distribution of communistic propaganda to the States,

Therefore Be It Resolved, That the Congress of the United States be and hereby is respectfully entreated by the officers and members of The Woman's Constitutional League of Virginia to disestablish the Children's Bureau of the Department of Labor, and thus free the Government of, this nest of communistic propaganda.

Respectfully submitted.
MRS. W. B. RUCKER, *President.*

P. S.—Similar resolutions have been endorsed by the New Jersey Society, Daughters of the American Revolution at their annual State Convention held March 18, by the Massachusetts Public Interests League in February, by the Sentinels of the Republic at their annual meeting in January, 1927.

Senator William H. King, of Utah, February 25, 1927, presented to the Senate a Bill—S 5820—to repeal the Act of 1912 establishing the Children's Bureau.

When the people at large clearly understand that the activities of the Children's Bureau is a drive for power in every direction (health, education, labor, recreation) over the children of the Nation with its consequent invasion of the home, there is but little question of their demand for its abolishment.

D. A. R. RESOLUTIONS FOR CONSTITUTION AND AGAINST BUREAUCRACY

Among the noteworthy resolutions adopted by the 36th Continental Congress of the National Society, Daughters of the American Revolution, at Washington, April 19-23, 1927, were Resolution No. 8, pledging the organization "individually and collectively to defend and uphold the Constitution by loyalty to its sentiments, obedience to its provisions and by holding its principles sacred and inviolable"; No. 14, reaffirming the pledge of the 35th Congress to support adequate national defense against foreign and domestic enemies, and recommending "a definite intensive campaign, to be organized in every State" to combat and "to overcome subversive influences and defeatist forces"; and No. 15, opposing bureaucracy and "the unwarranted extension of Federal activities" and asking that "all activities of the Federal Government be confined to the effective discharge of the national duties expressly delegated" by the Constitution, and that "all Federal activities not necessary to the performance of those national duties be discontinued as rapidly as possible" to restore the responsibilities imposed upon the Nation, the States and the individual citizens "by the form of government for which our forefathers fought, worked and died." The full text of these three resolutions follows:

No. 8, Adopted April 20, 1927

WHEREAS, The National Society Daughters of the American Revolution as a patriotic body, organized to maintain and extend the institutions of American Liberty, recognizes the Constitution of the United States as the foundation rock upon which our government has rested securely since the beginning of our nation, and

WHEREAS, We realize that our nation's unprecedented growth and prosperity are due to the wise provisions and sound fundamental human principles therein contained which are unchanging and unchangeable, and

WHEREAS, We are conscious that subversive forces in our country today would undermine the teaching and change the principles of this Constitution which is America's most sacred possession,

Therefore, Be It Resolved, That we, the Daughters of the American Revolution in this our Thirty-sixth Continental Congress assembled, wish to place ourselves on record as firm supporters of the Constitution of the United States, acknowledging it to be the greatest safeguard of human liberty ever given to mankind; and we pledge ourselves, individually and collectively, to defend and uphold the Constitution by rendering loyalty to its sentiments, obedience to its provisions and by holding its principles sacred and inviolable.

No. 14, Adopted April 22, 1927

APPROPRIATION FOR NATIONAL DEFENSE COMMITTEE

WHEREAS, The National Society, Daughters of the American Revolution in Thirty-fifth Continental Congress assembled, pledged themselves to support adequate national defense against enemies from without and enemies from within the Republic; and

WHEREAS, Members of the Thirty-fifth Continental Congress recommended a definite intensive campaign, to be organized in every state, to combat this danger, and

WHEREAS, It was resolved that State Regents be asked to appoint a chairman to direct the campaign of "Cooperation on National Defense," and

WHEREAS, This Committee on National Defense in its trial year of existence has proven its value throughout the Nation in helping its constituency to overcome subversive influences and defeatist forces, therefore be it

Resolved, That the National Board of Management recommend to Continental Congress that it provide financial support to enable the National Defense Committee to meet the incessant demands made upon it, thus demonstrating the ever-increasing appreciation of the necessity of its continuance.

Recommended by Resolution Committee April 20, 1927.

No. 15, Adopted April 22, 1927

WHEREAS, The preservation of the fundamental principles of the Constitution of the United States and the maintenance of efficient government and national security require that the resources and energies of the Federal Government shall be devoted exclusively to the national duties delegated to the Federal Government, and

WHEREAS, Assumption by the Federal Government, and relinquished by the State Governments of responsibility for and control over functions reserved to the States and the people by the Constitution, is gradually but certainly weakening the sense of individual and community responsibility, and undermining the institution of local self-government, resulting in impairment of the efficiency of both Federal and State Governments, and individual neglect of local civic duties, and

WHEREAS, Another direct and unwholesome result of the unwarranted extension of Federal activities is the creation of autocratic bureaucracy, in direct contravention of the American system of government devised by the founders of the Republic, and

WHEREAS, In the language of President Coolidge, "Unless Bureaucracy is constantly resisted it breaks down representative government and overwhelms democracy," now, therefore, be it

Resolved, By the National Society, Daughters of the American Revolution, that all activities of the Federal Government be confined to the effective discharge of the national duties expressly delegated to the Federal Government by the Constitution and that all Federal activities not necessary to the performance of those national duties be discontinued as rapidly as possible, thereby restoring to our Nation, our States and our individual citizens the respective responsibilities imposed by the form of government for which our forefathers fought, worked and died.

AMERICAN WAR MOTHERS DENOUNCE MATERNITY ACT

RESOLUTION PASSED BY THE AMERICAN WAR MOTHERS ON THE PHIPPS-PARKER MATERNITY BILL

"WHEREAS, We believe that America has reached its present World leadership by the exhibition of capabilities peculiar to American home and Social Conditions, and

"WHEREAS, We believe that the substitution of any artificial interference with the American Home is certain to cause a decadence of the typical American qualities of leadership, and

"WHEREAS, These qualities of leadership are both the product of, and the surest safeguard for American liberty and American institutions, and

"WHEREAS, The Phipps-Parker Bill (S 2693, HR 7555) aims by extending the present maternity act to increase bureaucratic interference with the integrity of home life, and

"WHEREAS, The next logical step after communizing the child is to communize the mother, and

"WHEREAS, Many of the names mentioned in connection with the sponsorship are alarmingly familiar in connection with other communistic activities.

"Therefore, Be It Resolved, That the American War Mothers, an Organization incorporated by Act of Congress, do hereby enter vigorous protest against the passage of said Phipps-Parker Act, and that the president of this Association be, and is hereby authorized to furnish a copy of this resolution to each member of the committees of Congress before whom this measure is to be considered, to the public press and to all other agencies who will assist in preventing its favorable consideration by Congress.

'The above is a true copy of the resolution adopted by the National Executive Board, American War Mothers, at its meeting held in Thermopolis, Wyoming, July 12, 1926."

(Signed) MARGARET N. MCCLUER,
National President, A. W. M.

MASSACHUSETTS PUBLIC INTEREST LEAGUE

210 Newbury Street, Boston, Mass.

February 18, 1927.

PETITION TO CONGRESS FOR DISESTABLISHMENT OF CHILDREN'S BUREAU

"WHEREAS, It has been proved beyond reasonable doubt by documentary evidence and public records that certain graduates, residents or associates of Hull House, including persons whose extreme communism or pacifism has only recently been revealed to the American public, succeeded in 1912 in persuading Congress to create what was then supposed to be simply a $30,000 a year "statistical agency" with no administrative power whatever over our States and children, called a "Children's Bureau," and

WHEREAS, Those in charge of the Bureau immediately began and still continue a campaign (by means of an Amendment to our Constitution) for full administrative power over all American children by that Bureau, and

This Bureau has sought and obtained under the so-called Maternity Act of 1921, through a system of Federal subsidies, an effective form of control over many State Health Departments in matters relating to maternity and infancy, and

WHEREAS, The American people, aroused by the attempt to put control of American youth into hands of a radical bureau, secured the rejection of the extreme and revolutionary measure called the Child Labor Amendment, and

Congress itself, with the approval of the President, has now recently repealed the Maternity Act, the repeal to take effect June 30, 1929,

Therefore, Be It Resolved, That the Congress of the United States be and is hereby respectfully urged by officers and members of the Massachusetts Public Interests League, to repeal the Act of 1912, creating the Children's Bureau, by the adoption at an early date of an amendment thereto, declaring, as in the recent repeal amendment to the Maternity Act, that the Act creating the Bureau "shall be of no force and effect after June 30, 1929."

The resolution to send the above petition to Congress was adopted without one dissenting vote, and signed, individually, by all officers and members present.

D. A. R. PROVE THEMSELVES TRUE DESCENDANTS

(Editorial, Louisville Courier-Journal, April 28)

The Daughters of the American Revolution proved themselves to be true descendants of the patriots who won their independence and then established a republican union of sovereign States when, in their national congress, just concluded, they demanded the preservation of the rights of those States and sounded a warning to the women of the land to scan critically all proposed legislation which would affect the home and the care and education of children.

"Investigate the origin and object of all such legislation. Ascertain whether it is in accordance with the Constitution of the United States," warned the Committee on National Legislation.

The Daughters of the American Revolution are as awake to their duty as were the Minute Men of 1775. The must have recalled that the Tenth Amendment to the Constitution of the United States provides that "the powers not delegated to the United States by the Constitution, nor prohibited to it by the States, are reserved to the States, reepectively, or to the people." That is the direct inference to be drawn from the vigorous resolution the congress adopted, which demands

That all activities of the Federal Government be confined to the effective discharge of the national duties expressly delegated to the Federal Government by the Constitution and that all Federal activities not necessary to the performance of those national duties be discontinued as rapidly as possible, thereby restoring to our Nation, our States and our individual citizens the respective responsibilities imposed by the form of Government for which our forefathers fought, worked and died.

No words could form a plainer Jeffersonian challenge to Federalism. They are a war cry against centralization, against the growing intrusion and bureaucratic government in the affairs of the State. They are a demand that intervention by a national government in the private affairs of the people must cease.

No specific mention of infringing legislation or further proposed invasion of the States by armies of bureaucrats was made in the D. A. R. resolution, but it is plain that the women are opposed to the establishment of a Federal Department of Education, and to such a proposal as the Child Labor Amendment, which would permit further overriding of State law.

The D. A. R., as individuals, have a historic background. Their forefathers have proven records of valor and a love of liberty. In protesting against the menace of centralized government, the "Daughters" are living up to the truest patriotic principles.

ILLINOIS AND OTHER STATES THAT REPUDIATED THE SHEPPARD-TOWNER ACT JUSTIFIED UNEQUIVOCALLY

Illinois, Maine, Massachusetts, Kansas and Connecticut can congratulate themselves upon their wisdom in refusing co-operation with the Sheppard-Towner Act.

Findings reported by the Bureau of Legal Medicine and Legislation of the A. M. A. add another flatfooted argument against this yoke of atrocious taxation and unwarranted wholesale intrusion of personal and professional rights, that is further one of the insidious and fundamental instruments of an encroaching bureacracy, that is socialistic, paternalistic and autocratic.

Dr. W. C. Woodward and J. W. Holloway, Jr., made the report that is published in the *American Medical Association Bulletin* under date of November, 1927.

So excellent and indisputable is the presentation of fact concerning the workings of the Sheppard-Towner Act that the ILLINOIS MEDICAL JOURNAL takes pleasure in quoting the report in full.

Statistics of the Sheppard-Towner Act in practice that are therein set forth will repay careful reading.

As the editor of the ILLINOIS MEDICAL JOURNAL has contended from the first, this report proves again that the Sheppard-Towner Act is not only a ludicrous piece of legislation but an unparallelled gold brick.

THE SHEPPARD-TOWNER ACT: SOME ADMINISTRATIVE ANOMALIES

W. C. WOODWARD, M. D.

AND

J. W. HOLLOWAY, JR.

Bureau of Legal Medicine and Legislation, American Medical Association

The Sheppard-Towner Act was passed by Congress to assist the several states in "promoting the welfare and hygiene of maternity and infancy."[1] Each year Congress places $1,240,000 at the disposal of the chief of the Children's Bureau and of the Board of Maternity and Infant Hygiene to accomplish that purpose. But Congress did not define in the act the limits of the "maternity" and "infancy" for which it so generously manifested such solicitude.

Admittedly, the term "maternity" is susceptible of a broad interpretation. Funk and Wagnall's New Standard Dictionary of the English language defines it as "the state of being a mother." It is legally defined as "the condition of a mother."[2] The term "infant," in its legal signification, embraces "any person who has not attained or arrived at the age of majority as prescribed by law. . . . At common law, a person under the age of twenty-one years."[3] If then, Congress used the terms "maternity" and "infancy" in their broadest connotations, any activity to promote the welfare and hygiene of every mother, regardless of her age and the ages of her children and the welfare and hygiene of all persons in their minority, can be justified. A fundamental rule of statutory construction, however, is that whenever the purposes of an act are not readily ascertainable from the act itself, recourse may be had to the circumstances surrounding its passage. To find out what circumstances surrounded the passage of the Sheppard-Towner Maternity Act it is necessary only to refer to the published hearings and to the discussions in the Senate and House of Representatives, on the bill from which that act was developed.

The Sheppard-Towner Maternity Act developed

from a bill introduced in the Sixty-fifth Congress,[4] but which did not come up for discussion on the floor of either the Senate or the House. The bill was again introduced in the Sixty-sixth Congress.[5] Senator Morris Sheppard of Texas, the sponsor of this bill in the Senate, in urging its passage, said:[6]

The need for this act is shown in the appalling number of deaths of mothers in the United States *due to causes connected with childbirth, and among infants under one year of age.* It developed at the hearing on this bill before the Committee on Public Health that 23,000 mothers died in this country from such causes in 1918, that nearly 250,000 infants less than one year old perished during the same year, and that most of these deaths were preventable.

Here the sponsor of the bill indicated clearly that its purpose was to reduce the number of maternal deaths incident to childbirth and the number of deaths of infants under 1 year of age. And the Senate then passed the bill. It failed, however, to pass the House and was, therefore, introduced in the Sixty-Seventh Congress.[7] Representative H. M. Towner, of Iowa, the sponsor of the bill in the House, testified before the Committee on Interstate and Foreign Commerce of the House, as follows:[8]

The origin of this bill is very briefly this: The Children's Bureau here in Washington, cooperating with other institutions, both public and private, interested in child welfare all over the United States, very early in their work came to a recognition of this very important and terribly tremendous fact, that there was in the United States an unusual, *a disgraceful amount of mortality arising from maternity cases, both as to the mothers and the children of the country.*

Representative Towner, then, was pleading for the passage of the bill because of the "mortality arising from maternity cases." Representative Towner asked the committee to hear Dr. S. Josephine Baker, director of the Child Hygiene Division of the New York City Board of Health. Dr. Baker offered for the consideration of the committee two exhibits.[9] One related to maternal mortality and bore the following legend: "The United States lost over 23,000 women in 1918 *from childbirth.* We have a higher maternal death rate than any other of the principal countries.—Children's Bureau, U. S. Department of Labor." The other was entitled, "Infant Mortality Thermometer, Deaths *Under 1 Year of Age* Per 1,000 Births." Under this exhibit the following legend appeared: "Within the first year after birth, the United States loses 1 in 10 of all babies born. It ranks eleventh among the principal countries of the world. New Zealand loses fewer babies than any other country. Rates are for latest available years up to 1918. Children's Bureau, U. S. Department of Labor." This witness apparently was asking favorable consideration of the measure by the committee *because of the high death rate of infants under one year of age, and because of the large number of deaths of mothers incident to childbirth.*

The Senate Commttee on Education and Labor in recommending to the Sixty-Seventh Congress that the bill pass said:[10]

It is believed by your committee that this legislation by the National Government is necessary and of an emergency character. It is intended to stimulate and aid the states to provide means for saving the lives of thousands of mothers and infants who are annually dying in our country for want of care and attention. It was shown in the hearings that in a single year 23,000 mothers died in *childbirth* and nearly 250,000 *infants died under one year of age,* and that most of these deaths were preventable. . . . One half of infant deaths occur within six weeks of birth and are due chiefly to the condition of the mother and the lack of proper care and attention during and following confinement. Maternal deaths and infant deaths from maternal causes are not decreasing, principally because mothers do not have the necessary care, advice, and assistance they need.

Statements of similar import are scattered throughout the hearings on the bill and throughout the pages of the *Congressional Record.* In the committee hearings, in the committee reports and on the floor of the House and Senate, emphasis was placed solely on the number of deaths of women incident to childbirth and on the number of deaths of infants under 1 year of age. These were the conditions that the proponents of the bill wanted to correct, and it was obviously for that purpose that the bill was enacted.

But however clearly Congress may have understood the purpose for which it legislated, the chief of the Children's Bureau and the Board of Maternity and Infant Hygiene apparently felt free in administering the law to extend its scope. An examination of plans for operations under the act brings to light some such extensions that seem difficult to justify in the light of the apparent purpose for which the act was passed. The following examples have been selected from plans submitted by the several states containing proposed activities under the joint federal-state funds for the fiscal year 1927. In each case the plans were submitted by the particular state agency administering the funds locally, and all such plans were stamped "Approved by Maternity and Infant Hygiene Board."

SOME ACTIVITIES UNDER THE SHEPPARD-TOWNER MATERNITY ACT

California, in plans submitted June 7, 1926, and approved June 25, 1926, made provision for the publication of three pamphlets during the year, one on smallpox vaccination, one on "immunization with diphtheria" and one on the handicaps caused by tonsils and adenoids.

Colorado, in undated plans, approved June 25, 1926, provided for special work with the boys and girls clubs at the state fair.

Delaware, in plans submitted June 7, 1926, and approved June 25, 1926, outlined an extensive toxin-antitoxin campaign for the rural districts. Reference was made to the publication of literature on diphtheria, typhoid, milk, diarrhea-enteritis and diet for children from 1 to 4 years of age. Quoting from the plans submitted: "Since April, 1926, we have been conducting an extensive toxin-antitoxin campaign. A large number

of preschool children have already been immunized and it is our plan to continue the campaign until every community is reached. During the summer months a typhoid campaign will be put on."

Georgia submitted plans for furnishing free diphtheria toxin-antitoxin to clinics for the immunization of children under 7 years of age. Plans were submitted under date of Sept. 30, 1926, and were approved Nov. 4, 1926.

Idaho, in plans submitted Oct. 6, 1926, and approved Nov. 4, 1926, made provisions for the distribution of literature on "How to Correct Constipation in the Preschool Child."

The plans submitted by Indiana for the fiscal year 1927, bore the approval of the federal board as of June 25, 1926. These plans provided for cooperation with the department of immunology in advertising smallpox and diphtheria immunization as a part of health protection.

The plans of Iowa were undated, but were approved June 25, 1926. Provision was made for a dental clinician, a dental hygienist, and a nurse for advance work to conduct dental conferences for children up to 7 years of age, covering the care of teeth, with some actual demonstration of cleaning and repair work.

The budget submitted by Kentucky, under date of June 8, 1926, and approved June 25, 1926, provided for the following salaries: State health officer, $1,000; director, $3,600; assistant director, $3,600; clinical instructor, $1,800; chemist for water and milk supply, $1,800; inspector of birth registration, $1,500; educational instructor, $900; six clerks, $3,720; stenographer, $1,500; bookkeeper, $300.

Louisiana, on June 23, 1926, submitted plans for an intensive campaign among registrars and physicians for complete registration of birth, for dental examinations, with corrections of minor defects, for examinations of milk and water and for the examination of specimens for the determination of hookworms, other parasites and malaria. These plans were approved by the federal board, June 25, 1926.

The plans submitted by Maryland for the fiscal year beginning July 1 (no date) were approved July 27, 1926. The plans provided for a continuation of centers for child health work in the counties of Maryland and for an extensive system of examinations of preschool children. Plans were submitted for a survey of the crippled children in rural Maryland. According to the plans submitted, no distinct maternity center had been created, "although expectant mothers are seen in small numbers at child health conferences." Contributions were made to the nursing budgets in sixteen counties. Plans were submitted for the continuation of the dental service to preschool children throughout the year. "During last year," quoting from the plans, "this service has been considerably extended and following the preschool examinations, dentists in a number of instances have been sent with portable equipment to make the corrections found necessary."

The budget and plans submitted by Montana provided for the payment of a salary of a laboratory technician from the joint funds. It was not contemplated that this technician should devote her entire time to Sheppard-Towner work. A letter from the division of child welfare of the Montana State Board of Health, July 27, 1926, explaining this item, bears the approval of the federal board under date of Aug. 19, 1926. The budget and plans had therefore been approved on June 25, 1926, subject to a question with respect to the laboratory technician.

New Mexico, in plans submitted for the fiscal year 1927, approved June 25, 1926, made provision for the survey of "all milk supplies in a few counties where it is possible to have adequate follow-up."

Plans for New York were submitted June 15, 1926, and approved June 25, 1926. The following excerpt is taken from the plans: "Orthopedic clinics. This consists of a traveling unit consisting of two orthopedic surgeons, $4,500 and $3,500, 11 field nurses, eight at $1,800, one at $2,000, two at $1,500, and one muscle tester at $1,320. This work is carried on in connection with the post-polio cases and such other general orthopedic cases as are referred to it by the various agencies. This work will be continued with the possible addition of three field nurses at $1,800, for the year 1926-1927. Child Health Consultations. . . . A dental hygienist will be added to the unit at a salary of $2,000, to examine the teeth of children coming to the consultations and give prophylaxis where indicated. . . . Post Graduate Medical Education. This service is carried on by the Board of Regional Consultants to this division, who comprise specialists in obstetrics and pediatrics. In the post graduate work, they have given courses of six and eight lectures each to all the county medical societies requesting them, and thus far some 30 or more have been given. Toxin-antitoxin. . . . In connection with the state-wide campaign to abolish diphtheria as carried on by the New York State Department of Health in cooperation with the State Charities Aid Association and the Metropolitan Insurance Company, it is planned for 1926-27 to assist in this campaign by urging the immunization of preschool age children in the child health consultations carried on locally under the Sheppard-Towner funds. As this will necessitate an extra day's work each time, special consultations for this specific purpose are urged, and we have accordingly budgeted for this work in the sum of $5,000."

North Carolina, in plans undated, approved July 25, 1926, made provision for the administration of toxin-antitoxin to children of preschool age.

Ohio, in plans submitted June 15, 1926, approved June 25, 1926, included a provision for pediatrician fellowships, budgeting $6,000 therefor.

Oklahoma, in plans and budget (both undated), approved June 25, proposed cooperation with the University Extension Department in postgraduate courses in pediatrics and obstetrics for rural physicians. The budget carried an item—"for special payments—$4,000."

The plans submitted by Pennsylvania under date of June 11, 1926, approved June 25, 1926, provided for a diphtheria toxin-antitoxin campaign. The budget car-

ried an item of $7,800 for twenty-six birth registration clerks, all payable from federal funds. Quoting from the plans: "Records are required to be kept at the present time of preschool and school age children so as to be able to know the number properly immunized at the expense of the Sheppard-Towner fund."

The plans submitted by South Carolina called for the payment from the joint funds of a salary for a milk technician, $2,100. This item was first questioned and later approved by the federal board on July 22, 1926.

Virginia submitted plans and budget on June 24, 1926, and both were approved June 25, 1926. The plans provided for the expenditure of $1,600 for scholarships for nurses. Definite health work was planned "emphasizing sanitation, malaria control, diphtheria prevention, and the lessening of infant mortality, stillbirths and maternal mortality." Conferences were to be arranged exclusively for the benefit of the preschool child and infants. The budget submitted provided for the following: Director, $2,750; assistant director, $2,500; supervisor of nurses, $2,200; assistant supervisor, $1,800; supervisor of midwives, $2,000; supervisor of mothers, $2,000; correspondence course secretary, $1,320; three stenographers, $1,200, $1,140 and $1,020; bulletin clerk, $1,080; drug clerk, $1,200 (all of the foregoing personnel being on twelve months' basis). Part time personnel was provided for as follows: Dental clinician (2 months), $400; preschool clinician (2 months), $400; extra help, $303. Scholarships for public health nurses, $1,600; $15,000 was budgeted to take care of forty nurses in county nurse service.

SCHOOL AND COLLEGE WORK UNDER THE SHEPPARD-TOWNER ACT

That Sheppard-Towner money has been allotted to states for purposes recognized by the Federal Board of Maternity and Infant Hygiene itself, as not within the spirit of the Sheppard-Towner Act, is shown by the proceedings of the board as reported by the chief of the Children's Bureau.. The report says:[11]

While the board agreed that the act was intended to promote the welfare of mothers and children during the first few years of life, it was recognized that some flexibility was necessary, especially in those states in which only school health work had been done. The plans of six of these states were accepted with the proviso that the approval of certain items, such as work with the school child and courses in the hygiene of maternity and infancy in girls' and women's schools, should not constitute a precedent for the approval of such items in subsequent plans.

The attempt to explain and excuse these expenditures is hardly sufficient to protect future appropriations under the act from abuse. If it had been lawful heretofore to expend Sheppard-Towner money for work with the school child and for courses in the hygiene of maternity and infancy in girls' and women's schools, it will remain lawful to make such expenditures so long as the unamended act is in force. The fact that the Federal Board of Maternity and Infant Hygiene, as constituted on April 18, 1922, stipulated that the authorizing of such expenditures should not be regarded as a precedent for future expenditures of the same nature cannot prevent any subsequent board from taking a different view of the situation. The action of the board, taken presumably without objection by accounting officers of the Treasury Department, shows the multiplicity and breadth of the purposes for which Sheppard-Towner money may be applied, if future boards so elect.

AGE LIMITS IN THE SHEPPARD-TOWNER MATERNITY ACT

Too harsh criticism should not be directed against the federal officers charged with the administration of the Sheppard-Towner Maternity Act, because they allotted funds for the benefit of persons beyond the age of infancy, as that term is universally construed in health work.[12] Criticism should be directed rather against the uncertain terms of the act itself. The danger of a broad construction of such terms was pointed out in the course of debate in the Senate when the bill was under consideration, but no effective voice was raised in protest against it

In the Senate, Dec. 16, 1920, the following colloquy occurred:[13]

Senator Thomas of Colorado: Mr. President: The word "infancy" has a legal definition, as the senator from Connecticut knows. It includes all those under 21 years of age. Does the senator think that it is possible under the terms of this bill that its provisions may be extended to all those under legal age?

Mr. Brandegee of Connecticut: "I think legally that would be possible, but I referred to that while the senator from Colorado was temporarily absent from the floor. . . . *Of course, I do not apprehend that any member either of the state or federal boards would extend aid to an infant of 20 years of age unless he were an idiot or somebody who could not take care of himself.*"

Mr. Thomas: "Of course, there are degrees between the extremes of birth and 20 years of age. Does not the senator think that it would be perfectly easy, in accordance with the terms of this bill, to apply its provisions to young children of four, five, six or seven years of age,,"

Mr. Brandegee: "Yes, and I said that on principle, if the object of the bill is to guarantee that future citizens of this country shall be able-bodied and sound in mind and body, it is not enough merely to provide that they shall be safely and sanitarily brought into the world."

The possibility that federal officers might undertake to construe the Sheppard-Towner Maternity Act as an act "to guarantee that future citizens of this country shall be able-bodied and sound in mind and body," and not merely an act "for the promotion of the welfare and hygiene of maternity and infancy," as the title of the act implies, was recognized by Senator Brandegee, although he endeavored to make light of the danger. In the course of the debate, the senator said:[14]

Of course, "infancy" as alluded to in this bill, is un-

determined in duration, unless it be the time which the law gives the word "infant" which is until he is 21 years of age. If all the boys in the country are to be cared for by the government until they get to be 21 years of age, the other people will have to abandon the eight-hour law, and work harder than they ever worked before to support them. This is an extreme case, and I do not suppose any federal board would so rule.

But the bill was not amended so as to include any statutory prohibition that would prevent a federal board from so ruling. Everything was left to what was "supposed" to be the case. There the matter now stands.

BARTER OF CONSTITUTIONAL RIGHTS

It has been pointed out elsewhere[15] that the policy underlying the Sheppard-Towner Maternity Act is calculated to justify or excuse the establishment of a system of federal subsidies whereby the government at Washington may induce the states to yield to it their constitutional rights to supervise and control intrastate activities in the field of maternal and infant hygiene. In this article it is pointed out that mere administrative practice under that act may enlarge federal domination so as to make it cover intrastate activities seemingly remote from those named in the act. The act seems to have been intended only to provide funds through which federal officers could dominate health activities immediately related to maternal and infant hygiene. Here one can see from official records how funds so provided have been used to acquire the right of supervision and control over special work for the boys' and girls' clubs at the state fair in Colorado; over the activities of the state health officer in Kentucky; over the examination of milk, of water and of specimens submitted for determination as to the presence of hookworms and other parasites in Louisiana; over a survey of crippled children in Maryland; over the activities of a laboratory technician in Montana; over a survey of certain milk supplies in New Mexico; over orthopedic clinics and certain postgraduate medical education in New York; over pediatrician fellowships in Ohio; over the activities of a milk technician in South Carolina; over scholarships for nurses in Virginia; and so on.

That the activities named are activities in which the states may properly engage, no one can deny. That such activities within a state should be supervised and controlled by federal officers may well be denied. That federal officers do supervise and control intrastate activities in the fields named, to the extent that such activities are paid for from Sheppard-Towner funds, is clear; otherwise the federal officers charged with the expenditure of such funds would be derelict in their duty to see that such funds are expended in accordance with law and with the plans that have been approved by them. The act itself requires the approval by federal officers of plans for any intrastate health activities toward the expense of which the federal government is a contributor, before the state can enter such activities; and when such activities are under way, they are by law subject to the supervision and control of federal officers, who may penalize any state even to the extent of the withdrawal of federal funds, if the work is not being done in a way that meets the approval of such officers. And the supervision and control that may be made the basis for the withdrawal of federal funds covers not only work paid for from such funds, but also the coordinated state work paid for from state funds.

The constitution gives to the federal government almost unlimited taxing power. It gives to the states almost unlimited power to protect and promote the health of their people, free from federal interference. The Sheppard-Towner Maternity Act constitutes a device through which the right of the federal government to tax and the right of the state to control its own health activities may be bartered one for the other. The federal government, through its taxing power, collects money either directly or indirectly from the people of the several states. Through the Sheppard-Towner Maternity Act it agrees to pay back to the people of the states, on certain conditions, some or all of the money thus taken, and in some cases more. By the return of such money, the federal government offsets or negatives the collection of it by taxation in the first instance. But the only condition on which the federal government will return the money thus collected from the people of the states is that the states, in return therefor, cede to the federal government their constitutional right to supervise and control health activities within their own borders, free from federal supervision and control. If our government is to continue as a dual government, on its present constitutional basis, it seems essential that neither Congress nor any state legislature sanction any such system of barter. It is vital, however, that if Congress or any state legislature sanctions any such barter, the limits within which it may be carried on be clearly defined by the legislative body itself. They must not be left to be determined by federal boards, bureau chiefs or other administrative officers.

REFERENCES

1. 42 Stats. 135.
2. 39 Corpus Juris 1388.
3. 31 Corpus Juris 986.
4. H. R. 12634; S. 4782.
5. H. R. 10925; S. 3259.
6. Congressional Record, Sixty-Sixth Congress, third session 60:417 (Dec. 16) 1920.
7. H. R. 2366; S. 1039.
8. Hearings before the Committee on Interstate and Foreign Commerce of the House of Representatives, Sixty-Seventh Congress, first session, on H. R. 2366, p. 7.
9. Same, pp. 16 and 17.
10. Committee on Education and Labor, Sixty-Seventh Congress, first session, report 61, accompanying S. 1039.
11. The Promotion of the Welfare and Hygiene of Maternity and Infancy. The administration of the act of Congress of Nov. 23, 1921, for the period March 20, 1922, to June 30, 1923, Bureau Publication No. 137, p. 6.
12. "The infant mortality rate is the number of deaths of infants *under one year of age* per one thousand born alive,"

Ninth Annual Report, Bureau of Census, Department of Commerce, 1923, p. 30.

13. Congressional Record, Sixty-Sixth Congress, third session 60:468 (Dec. 16) 1920.

14. Congressional Record, Sixty-Sixth Congress, third session, 60:466 (Dec. 16) 1920.

15. Woodward, W. C.: The Sheppard-Towner Act: Its Proposed Extension and Proposed Repeal, Bull. A. M. A. 21:126-133 (May) 1926.

FEDERAL LEGISLATION OF INTEREST TO THE MEDICAL PROFESSION LIKELY TO COME BEFORE THE SEVENTIETH CONGRESS

Matters of interest to the medical profession that are likely to be considered by the Congress that assembles in Washington on the first Monday in December are scheduled below, with a statement of the policy of the American Medical Association with respect to them. Other matters that may come up for consideration by Congress and the policy of the Association in regard to them will be made known through the pages of the *Journal* or otherwise, as occasion arises. The cooperation of organized medicine and of every physician throughout the country in carrying into effect the policies of the Association with respect to all such measures is necessary, if success is to be attained.

The matters and policies set forth should be brought to the attention of senators and representatives before they leave home to take up their congressional duties in Washington. The personal contacts thus made will add force to anything that may be done later by letter or telegram. The American Medical Association, however, asks no pledge nor promise from any senator or representative with respect to his attitude toward any legislation whatsoever. It asks only that he keep an open mind with respect to matters in which medical men are interested until after the profession has had an opportunity of stating its views and its reasons for them.

1. *Safeguards in Promulgation of Regulations Under National Prohibition Act and Harrison Narcotic Act.* Legislation will be proposed to insure notice to all interested parties of every regulation proposed by the Commissioner of Prohibition under the National Prohibition Act and the Harrison Narcotic Act. Such legislation will provide for an opportunity for the medical profession to be heard before the promulgation of any such regulation, for adequate notice of promulgation and reasonable time after promulgation for adjustment of affairs so as to comply with new requirements, and for publication of all such regulations so as to make them readily available to the profession throughout the United States. As the law now stands, the Commissioner of Prohibition can lawfully promulgate a regulation without notice to anyone of his intention to do so, and it may take effect from the moment of its approval by the Secretary of the Treasury. The law now in force does not require that it be published at all. The proposed legislation has the approval of the House of Delegates of the American Medical Association and of various state medical associations.

2. *Sale of Dangerous Cosmetics, Etc.* Legislation will be proposed to safeguard the people against the mnaufacture, distribution, and commercial use of dangerous cosmetics, etc. Such legislation originated in the Section on Dermatology and Syphilology of the American Medical Association and has received the approval of the House of Delegates. It calls for supervision and control by the federal government of interstate and foreign commerce in cosmetics, etc., and of the manufacture and sale of such articles in the district of Columbia and other places under the exclusive jurisdiction of the federal government.

3. *Federal Income Tax and Reduction of Traveling Expenses.* Legislation will be proposed to give physicians the right to deduct in the computation of their federal income taxes traveling expenses incurred in attending meetings of medical organizations. A similar right is now granted chemists, ministers, corporations, and, it is believed, business men generally. This matter has been called to the attention of the Congressional Joint Committee on the Revision of the Revenue Act. It is hoped that it may be adjusted without having recourse to legislation. Should legislation be required, however, the support of all senators and representatives will favor its enactment.

4. *Amendment of National Prohibition Act.* Legislation will be proposed to permit physicians to prescribe for patients in need of alcohol and alcoholic liquors such amounts as the attending physician believes necessary. The proposed legislation will provide for such reasonable restrictions as the Board of Trustees deems wise and best after a conference with the Commissioner of Prohibition. This proposed legislation has received the endorsement of the House of Delegates of the American Medical Association.

5. *Pay of Medical Officers in the Army and Navy Retired on Account of Disabilities Incurred in Line of Duty in the World War.* Legislation will be proposed, it is believed, to secure for medical officers who served in the temporary forces of the army and navy during the World War and who were disabled by injuries or diseases resulting in the discharge of duty, the same retirement privileges as are accorded to medical officers in the regular army and navy under similar conditions. Such legislation has received the approval of the House of Delegates of the American Medical Association.

6. *Medical, Surgical and Hospital Services for Veterans Suffering from Diseases and Injuries not of Service Origin.* Legislation may be proposed to perpetuate and enlarge the free medical, surgical and hospital services now given to veterans, rich and poor, for injuries and diseases *not* incurred in the line of duty. The World War Veterans Act of 1924 authorized the Director of the Veterans' Bureau to admit to hospitals under his control veterans of all wars, military occupations, and expeditions subsequent to 1897 *without regard to the origin of their disabilities*, so far as the needs of veterans suffering from injuries and disabilities *of service origin* might permit. As a

result, during the fiscal year 1925, there was an increase of 20 per cent in admissions to such hospitals, and on an average for every two veterans admitted for service-connected disabilities one veteran was admitted for non-service-connected disabilities. The announced building program of the Veterans' Bureau, however, plans not to reduce the capacity of its hospitals so as to provide only for veterans suffering from service-connected disabilities; it plans to maintain such hospitals on their present basis, thus perpetuating all beds now available for non-service-connected injuries and disabilities. This will allow, too, for an increase in the number of such beds, as the demand for beds for the treatment of service-connected injuries and disabilities will diminish, as time goes on. What the plan proposes is the maintenance and enlargement of the system of federal state medicine already begun under the World War Veterans' Act of 1924. The American Medical Association does not desire the diminution by even a single bed of the facilities necessary for veterans suffering from disabilities of service origin. But legislation that will provide and maintain, and even enlarge, at government expense, the capacity of the hospitals under the control of the Veterans' Bureau so as to provide for the free treatment of patients, rich and poor, suffering from injuries and disabilities in no way whatsoever connected with service, has been condemned by the Board of Trustees of the Association.

7. *Protection of Residents of the District of Columbia from Incompetent Healers.* Legislation will be proposed to drive incompetent, unlicensed practitioners of the healing art from the District of Columbia and to hinder their return. Through lax enforcement of the medical practice act now in force, and possibly to a certain extent because of inadequacies in it, a large number of unlicensed osteopaths, chiropractors and other healers have established themselves in the District of Columbia and are now engaged in the diagnosis of diseases and injuries. The situation is a menace to the health of all who reside permanently or temporarily in the District. The very number of such unlicensed persons makes it difficult to dislodge them, and various organized groups of irregular practitioners see the advantage of recognition by the Congress of the United States and exert their utmost endeavors to obtain it. At the request of the Medical Society of the District of Columbia, the House of Delegates committed the American Medical Association to the support of an effort to obtain the enactment of a practice act for the District that will protect the people against incompetence and quackery. Congress, however, is the only legislature that the District of Columbia has. Every senator and representative throughout the United States is, therefore, a legislator for the District. It is for that reason that appeals should be directed to them for sane legislation for the protection of the people of the District.

8. *Sheppard-Towner Maternity and Infancy Legislation.* It is rumored that legislation will be introduced to authorize the continuance of federal activities under the Sheppard-Towner Maternity and Infancy Act, after the expiration of the period to which such activities are now limited by law. The rumor may have no foundation, however, for it was widely understood when the life of the Sheppard-Towner Maternity and Infancy Act was extended by the Sixty-Ninth Congress that the proponents of such legislation would not ask that the policy embodied in that act be continued beyond the time limit then set, June 30, 1929. If legislation is proposed to extend the life of the act beyond the time limit set or to embody the principles of the act in other legislation it should be borne in mind that the House of Delegates of the American Medical Association has gone on record as firmly opposed to the act and to the policy of the act.

9. *Prevention of Use of Dogs in Scientific Research.* The New England Anti-Vivisection Society has sent out a form letter announcing its plan to "introduce into the House of Representatives, at Washington, during the coming session, a bill for the exemption of dogs from vivisection." The letter requests the addressee to circulate an accompanying petition in support of the bill and to ask his representative in Congress to vote for it. The society alleges that the "International Conference for the Investigation of Vivisection, which now includes eighty-six anti-vivisection and humane societies," is sponsor for the bill.

Congress cannot directly restrict scientific research in any state. What Congress does, however, will be an important factor in determining action by state legislatures. The anti-vivisectionists are alive to this fact. They therefore seek legislation by Congress, for the District of Columbia and other places under exclusive federal jurisdiction, in order to establish a legislative pattern that the states may be induced to follow. Moreover, it has been frankly confessed on behalf of anti-vivisection interests that if a bill to prevent scientific research involving the use of dogs is enacted they will probably promote legislation to prevent the use of other animals for such research.

To prevent the enactment of legislation that will hinder scientific research in the District of Columbia and other places under federal control and that will be urged as a pattern for the enactment of similar legislation in your own state, it is important that you file with your senators and representatives immediately protests against the enactment by Congress of the bill now proposed by the New England Anti-Vivisection Society and against any similar legislation.—*G. A. M. A. Bulletin.*

DIPHTHERIA IMMUNIZATION

A letter from Dr. Ralph Sheldon, health officer of Lyons, Wayne County, states that over 1400 or 98 per cent of the children in that village have been immunized against diphtheria in the past four years. At a recent clinic 258 children received the third dose of toxin-antitoxin, ninety-nine being of preschool age.—*New York State Department of Health.*

Correspondence

NO LEGALIZED BIRTH CONTROL IN HOLLAND

To the Editor: Birth control advocates rarely fail to emphasize the statement that birth control practices prevail widely in Holland and are not only permitted by the government, but more or less encouraged on public grounds. It will, therefore, be of some interest to the medical profession to have the following authoritative statement from Dr. J. H. Van Zanten, Director of the Municipal Bureau of Statistics, Amsterdam, communicated to me on April 1 in response to an inquiry as regards the exact facts of the situation. Dr. Van Zanten writes me as follows:

"As to your remark about the 'birth-control' in this country, if you think that birth-control practices are not interfered with in Holland, I may as well tell you that in this respect you are ill-informed. I know this opinion is prevailing abroad, but it is wrong; on the contrary our Penal Code not only penalizes the procuring of abortion without medical indication and even the raising of expectations that abortion shall be procured, but also the public exhibition of preventive remedies and their commendation. Moreover, the Neo-Malthusian League has not succeeded in obtaining the royal consent on its articles of association.

"However, all this does not signify that limitation of births is not practiced here; on the contrary, in this respect our country may be put on a par with all other countries, perhaps with yours also, and the number of cases of abortion here is considerable too, though it is inferior to that of Germany and Russia.

"The effect of the practice of birth-control is the same in this city as in any other town, but here as well as everywhere else it escapes observation. As a matter of fact, our high surplus of births is exclusively due to our low death rate, which again may be attributed to our excellent hygienic measures."

FREDERICK L. HOFFMAN.
Prudential Life Insurance
Company of America.
Newark, N. J., April 11, 1927.

TWO DEATHS FOLLOWING ADMINSTRATION OF TYPHOID VACCINE

The *U. S. Naval Medical Bulletin*, July, reports the death of a 17-year-old recruit at San Diego following his third inoculation with antityphoid vaccine. The facts appear to be that the boy developed a severe reaction a few hours after inoculation, and died in about fifteen hours. A necropsy was performed, and an investigation made by a court of inquiry. The observations at the necropsy were general cyanosis; contractures of hands and feet; congestion and slight edema of the brain, and congestion of the lungs, liver, spleen and kidneys; the blood had not clotted twelve hours after death. The primary cause of death was charged as anaphylaxis, typhoid vaccine. Testimony before the court seemed to show that the boy had been quite sick after his second injection; that he was undersized, frail and in poor physical condition; that he was given a full cubic centimeter dose and that no definite provision was made for watching the effect. The testimony indicated also that a 10 cc. syringe was used and, although the hospital corps man who made the injection stated, positively, that he did not inject more than 1 cc. this, the report states, must be regarded as unsafe practice. The vaccine was straight typhoid vaccine, the navy having discontinued the use of triple vaccine in 1924. Another death reported is that of a sergeant, aged 35, who died after the third of a series of antityphoid inoculations, which were given seven days apart. He had not had any discomfort after the preceding injections. He died in about eight hours after the inoculation after developing a temperature of 102, and after having been seen by a medical officer twice in the evening. This case is recorded in the vital statistics of the navy with the primary cause of death as "myocarditis and valvular heart disease, combined lesions, aortic and mitral," and the secondary cause as "acute dilatation of the heart." The bulletin states that it is, of course, possible that the vaccine was the direct cause. A necropsy was made. The sergeant had been in the marine corps fourteen years, and had completed a course of antityphoid vaccine in 1912 and another in 1921. The two cases cited are the only ones in the naval service in which death could, in any manner, be attributed to antityphoid inoculations since November, 1924, when the use of straight typhoid vaccine was resumed.

KNEW HIS SYMPTOMS

Nearly every young doctor has had experience with patients like the old fellow of sixty who had been a grumbler all his life and had long made a practice of changing doctors on the slightest provocation. Recently he called in a young physician who had gained a considerable reputation.

He was telling the doctor what he thought was the matter with him when the doctor ventured to disagree.

"I beg your pardon," said the patient, with a haughty shrug: "It isn't for a young man like you to disagree with an old and experienced invalid like me."—*Patchwork.*

Original Articles

MORE ACCURATE METHODS OF MEASURING X-RAY DOSAGE*

ROSWELL T. PETTIT, M. D.,
Illinois Valley Hospital,
OTTAWA, ILLINOIS

During more recent years, that is during the past ten years, x-ray therapy has made remarkable advances, more particularly in the treatment of the more deeply seated lesions and especially carcinoma. The "X" or unknown ray is now quite well known and understood. It had been known for some time that there is considerable variation in the wave length of x-rays and that shorter and shorter wave lengths of x-ray can be developed by increasing the voltage impressed upon the x-ray tube. It has also been known for many years that the longer wave lengths have little penetration while the shorter wave lengths have greater penetration and now, with improved methods of producing very high voltages and better constructed tubes to withstand these high voltages, x-rays of very short wave length and therefore greater penetration can be produced in large quantities. It is also common knowledge that by heavier filtration it was possible to filter out the longer, allowing the shorter wave lengths to pass through the filter and an almost pure bundle of short x-rays of great penetration reaches the body of the patient.

By extensive and elaborate experiments, both physical and biological, it has been conclusively shown that these shorter wave lengths of x-ray, possessing a high degree of penetration are available for use on more deeply seated lesions, even eight or ten centimeters below the surface, and that at this depth sufficient x-ray can be delivered to the lesion through several portals of entry (utilizing the "cross-fire" principle) to produce a profound therapeutic effect without damaging the over-lying skin, that is, the production of x-ray burns of greater or lesser degree.

It is not only necessary to develop x-rays capable of producing a profound biological effect upon tissue, both normal and abnormal, but equally necessary to measure accurately the dosage of these rays in order to avoid on the one hand, over-dosage with resultant serious damage, and on the other hand under-dosage with resultant ineffective treatment.

Because of our inaccuracy in dosage methods, the errors of *omission*, on the part of the radiotherapeutist, I feel, have far outweighed the errors of commission. There is always the danger, when in doubt, in using such a powerful weapon as the x-ray, to undertreat rather than overtreat; in other words "to play safe" and the results necessarily achieved by x-ray therapeutists have fallen far short of the reasonable possibilities.

The problem of penetration has been quite satisfactorily solved. We now feel that x-rays developed at two hundred thousand volts are of sufficient penetration for practical application and economic production with but little to be gained by higher voltage, greater penetration at far greater cost both in tubes and apparatus. Filtration with five-tenths m. m. of copper, in this country at least, has come to be quite generally accepted as most suitable.

The problem of the measurement of x-ray dosage, however, is by no means so well worked out or so well established on a practical basis. There is still room for much work to be done. Sufficient work has been done though to warrant me in saying that methods of accurate continuous measurement of x-ray are now available and that the units of dosage of x-ray administration are more accurate physically and biologically than the units of measurement of diphtheria antitoxin, and that with these improved methods it is practical and safe in the hands of skilled workers to utilize x-ray therapeutics to a greater extent and with far greater effectiveness than heretofore. However, many laboratories, hospitals, and x-ray workers still cling to the older extremely crude and inaccurate methods of dosage measurement. It is the purpose of this paper to stimulate a greater interest along this line. It may be well to review the various methods of measureemnt of dosage that have been used in the past.

Photographic Method. The first method to be used was the photographic method in which the blackness produced on a photographic film by x-rays, as compared with a standard was used. This method, to quote Mackee[1]: "The Pastile Method as well as other practical methods of

*Read before Section on Radiology, Illinois State Medical Society, Moline, June 1, 1927.

quantity estimation gives us but a rough idea of the intensity of the primary beam."

Bachem[2] also states: "The method involves many sources of error. The results obtained are not very accurate or reliable. For the calibration or comparison of different roentgen apparatus the method is entirely unsuitable." It has been clearly shown that these photographic methods developed by Kinboeck, Holtzknecht, Sabouraud, Noiree and others have an error of greater than fifty per cent. The factors concerning the emulsion, the thickness of the emulsion on the film, the developer, its temperature, concentration, and the time of developing are all such important factors in determining the degree of blackness of the film of both the standard and the film for comparison, sources of error so great that this method is extremely inexact as well as time-consuming and laborious.

Selenium Cell. Another method which has been used for measuring the x-ray dosage, more particularly in Europe than in the United States, is the Selenium Cell, the method of Furstenau[3], the so-called "Furstenau Intensimeter." This consists of a selenium cell connected by two wires about fifteen feet in length to a battery and milliamperemeter. The selenium cell is placed between the x-ray tube and the body of the patient at a point where the intensity is to be measured. The x-rays, passing through the selenium cell to the body of the patient, change the penetration of the selenium cell to an electrical current; the degree of change being measured by the milliamperemeter. This instrument supplies a simple continuous method of measurement of the passage of x-rays, but unfortunately the various intensimeters show marked differences between each other and the same instrument slowly changes with time and in the course of treatment is capable of marked changes or "fatigue." Most of the intensimeters I saw in European laboratories and x-ray institutions were shoved back on an out-of-the-way shelf gathering dust.

Milliampere-Minute Method. The most common method of measurement of x-rays used in this country, in fact I might say almost universally used in America, is the indirect or electrical method—the milliampere-minute method. By this method the various electrical conditions under which the x-ray tube is activated are standardized and it is *assumed* that if these standard electrical conditions are used a standard type of x-rays of definite quantity and quality will be produced. While theoretically this is true, practically nothing could be further from the truth as a series of tests and experiments in my hands and in the hands of others has clearly shown.

In this method it is *assumed* that if the tube is operated at definite voltage using a definite number of milliamperes of current for a given length of time through a filter of standard thickness at a standard distance on a field of standard size a standard dose of x-rays will be delivered. Comparing the length of time to produce a biological effect upon the skin (an erythema of the first degree) it has been found that the number of milliampere-minutes necessary to produce this biological effect may vary as much as one hundred and fifty per cent. between different laboratories and hospitals. The factors used in this method and the sources of error are even greater than those found in the use of the photographic method of dosage measurement.

These factors are as follows:

1. Transformer.
2. X-ray tubes.
3. Filters.
4. Distance.
5. Voltage.
6. Milliamperes.
7. Size of field.

In the appended table, No. 1, taken from Arens & Beets[4] it is clearly shown that transformers of different makes vary greatly in their ability to produce x-rays.

TABLE 1: 200,000 Volts

	TREATMENT		
	FILTER	TIME	TOTAL DOSE
MACHINE	CU. AL.	M. A. MIN.	E. UNITS
A	.78	720	1700
B	.75 1	600	2100
C	.75 1	540	2000
D	.83 33	500	1600
E	¾	490	1850
		Deviation, 47%	31%

The same thing has been shown by Chamberlain & Newell[5] who state that "High Voltage roentgen therapy machines differ as much as two times in their roentgen ray output per milliampere-minute even when crest kilovolts, filter, distance, and area of mass radiated are the same."

While x-ray therapy tubes are quite constant in their qualities when they leave the factory, having an error of only two and one-half to three per cent. above, or below the normal when new, with continued use they decrease remarkably in

their efficiency and while voltage and milliamperage or all other factors remain the same, the x-ray tubes may drop as much as forty per cent. in efficiency without the operator being made aware of this fact. This also is shown by some test made by Arens & Beets,[4] Table No. 2.

TABLE 2

TUBE NO.	DISCHARGE TIME ELECTROSCOPE (MEAN)	DEVIATION FROM MEAN	PER CENT OF DEVIATION FROM MEAN
	NEW TUBES		
2U3027	23.15	+.60 secs.	2.8%
2U2949	22.16	—.39 secs.	1.8%
2U2763	22.53	—.02 secs.	0.1%
V1595	22.00	—.55 secs.	2.4%
2U2857	22.94	+.39 secs.	1.8%
	OLD TUBES		
Standard	25.24	00 secs.	0.0
2U2553	24.02	—1.22 secs.	4.8%
Y950	32.15	+6.91 secs.	27.5%
2U2622	27.38	+2.14 secs.	8.5%
Y1152	34.53	+9.29 secs.	36.7%
2U2652	23.07	—2.17 secs.	8.6%
V906	31.28	+6.04 secs.	23.9%

They have demonstrated on a series of old and new tubes that five new tubes had a variation of less than three per cent., while a series of six old tubes revealed a deviation of as much as thirty-six per cent. between each other and the standard new tubes, a source of error certainly too great to be ignored.

These same authors have also pointed out that there is considerable variation in the thickness of filters as furnished by the manufacturers. To quote Dr. Arens[4] again: "Here recently in order to get some idea of conditions we wrote to six manufacturers asking each to send us quarter, half, three-quarters, and one millimeter copper filters of certain size. It was just a little bit surprising when we came to measure up some of these filters, especially the half millimeter size, to find that they vary from thirty-five to fifty-seven hundredths millimeters in thickness"—a variation in thickness of sixty-three per cent.

Distance is a factor in x-ray dosage that is extremely important since the quantity of x-ray delivered to a given surface area varies as the square of the distance—the Square Distance Law. A difference of one or two centimeters in distance, while apparently unimportant, makes for great differences in the surface dose and the depth dose as well. I cannot see how it is possible with some of the cumbersome couches and overhead heavy-lead lined cylinders to measure the distance from the tube to the patient with sufficient accuracy both with regard to direction and distance. While some of these pieces of apparatus may make for greater protection and ease in operation they certainly affect the accuracy of application with regard to distance, a most important factor.

Voltage is most important since it affects both the quality and quantity of x-ray produced. Most operators using high voltages operate their tubes at 190,000 to 200,000 volts and are equipped with standard accurate sphere gaps for making voltage determinations—it has long since been shown that point to point spark gap measurements are too inaccurate for use in x-ray therapeutics. While most up-to-date properly equipped x-ray departments are thus equipped with sphere gaps for easy rapid frequent voltage determinations it is not practicable to determine the voltage at intervals of five or ten minutes throughout the treatment period. However, unless this is done, under the conditions under which I operate, at least, and which are quite likely no different from the conditions under which other people throughout this section of the country are compelled to operate, considerable variation in the voltage may take place from time to time with a consequent marked variation in quantity and quality of x-ray output (certainly as much as twenty-five to thirty per cent.) without any change whatsoever being shown by the milliampermeter. Constant reading voltmeters attached to the primary of the transformer introduced to overcome this source of error are notoriously inaccurate and not to be relied upon.

With regard to the milliamperage. With two meters in series the variation in one is constantly checked by the other and under present day operating conditions variability in milliampere meters need not be a source of error.

With care in measuring the field and marking this area on the skin of the patient the size of the area radiated need not make for inaccuracy. However, this short discussion, I believe, is sufficient to demonstrate that the so-called milliampere-minute method of x-ray measurement is not to be relied upon for dosage determination. No wonder the x-ray operator wants to "play safe!" But what about the patient that receives inefficient and inadequate treatment?

Biological Method. Another method that has been used extensively in the measurement of the dose of x-ray is the biological one or the determination of the erythema produced on the skin of

the treated individual. The determination of this "first-degree burn" or erythema is difficult, because so much depends upon the degree of redness, the length of time before its appearance and the subsequent amount of tanning and scaling.

Seitz & Wintz[6] define the unit skin dose as "the quantity of radiation which eight days after exposure produces a slight hyperemia and four weeks after a slight tanning of the skin."

Friedrich has said the limit of variation in the normal skin to this erythema is about twenty-five per cent. Leddy & Weatherwax[7] further state "in the literature there seems to be no agreement on the degree of redness an erythma should embrace. It appears to be a purely relative term depending upon the judgment of the radiologist making the observation. It seems quite improbable that a scale of erythema value, comparable to the hemoglobin scale for example, would have any practical significance, for the problem of the obviation of normal skin pigment in the estimation of redness due to radiation, is one not easy of solution. * * * Observations made on a sufficiently large group of patients enable us to say that there is a maximum variation of at least fifty per cent. in the time in which a reaction of normal skin definable as an erythema can be produced with roentgen rays." They further conclude "the erythema skin unit dose is a flexible arbitrary inaccurate standard. Dosimetry based on it has a relative value individual to the judgment of the radiologist. In reporting technique in therapy, full data should be given until a definite standard is established."

It has further been shown by other workers that the erythema dose of the French is almost double the erythema dose used by the Germans.

Ionization Method. The method which is the most exact that we have at our disposal is the direct or ionization method. This depends upon the fact that x-rays in passing through a gas, such as the air, ionize the gas separating the gas molecules into positive and negative ions. If x-rays are allowed to act upon a gas or air in a closed chamber the gas or air becomes ionized in direct proportion to the amount of x-rays passing through the chamber. As is commonly known, air under ordinary conditions is a dialectric and does not permit the passage of extremely small electrical currents. Therefore, if an electrical current is passed through a closed chamber of ionized air the amount of current that can be passed is directly proportionate to the amount of ionization and since this ionization is in direct relation to the amount of x-ray produced the measurement of the electrical current becomes a direct measurement of x-rays.

Various instruments have been devised and perfected utilizing this principle and today we have instruments available by which we are capable of measuring directly the units of x-ray produced by this method.

One of the most important of these various instruments that has been devised is the iontoquantimeter invented by Professor Friedrich of the University of Freiberg, Germany.

This instrument consists of a small chamber of one cubic centimeter capacity with a central electrode very carefully insulated. This electrode is connected to an electroscope by a wire through a very carefully insulated cable. With the production of x-rays the air in the small chamber is ionized and permits the passage of a current, which slowly discharges the electroscope, and the movement of the needle of the electroscope over a certain length of scale in a given time determines the amount of ionization current and therefore a direct reading of the amount of x-rays passing through the chamber. This, and other instruments of like character, can be standardized against a standard instrument and we have available at this time a standard unit of x-ray dosage (the roentgen unit) or what is commonly called the R unit of the German Bureau of Standards.

Several physicists in this country possess iontoquantimeters or other instruments of like character standardized against the instrument of the German Bureau of Standards and are capable of determining the R units per hour produced by an x-ray equipment.

Dr. Otto Glasser of the Post-Graduate Hospital of New York and Dr. Albert Bachem of the X-ray Department of the University of Illinois Medical School, Chicago, both highly qualified physicists, are prepared to make such measurements and standardizations.

It is no longer necessary to speak of x-ray dosage in terms of the extremely inaccurate "milliampere-minute" or "erythema time" but it is possible to speak of *units* of roentgen dosage, R

units, in the same way we speak of units of diphtheria antitoxin.

The iontoquantimeter and the electroscope are extremely valuable instruments but they have the drawback of being extremely delicate and subject to changes induced by weather conditions and also because it is not very practical to take repeated measurements throughout the course of a treatment. I have an iontoquantimeter made by Professor Friedrich of the University of Freiberg, Germany, and he has the reputation of making the very best instrument of this type. However, on checking this instrument with radium (which as you know furnishes a constant unchanging source of radiation) over a period of sixty days under varying weather conditions it was found that the readings of the instrument varied as much as sixteen per cent. above and below the normal. Therefore, we can not consider this instrument reliable unless checked daily with radium to eliminate this source of error. Sixteen per cent. variation in the practical administration of dosage cannot be dismissed from the mind as being unimportant.

The instrument that I wish to present at this time before this Society is one that utilizes the ionization principle of direct measurement of x-ray production but instead of having the ionization chamber connected with an electroscope (which is influenced more or less by weather conditions as stated in the preceding paragraph, and with which measurements can be made only at intervals) this instrument, utilizing the galvanometer principle, makes it possible to measure the dose continuously throughout the course of the treatment. In other words the x-ray operator knows all the time in terms of roentgen units per hour exactly how much x-ray is being administered to his patient. He is not dependent upon voltmeter or milliampermeter and not at the mercy of any of the sources of error that have been discussed. Any variation in line voltage, with its subsequent increase or decrease in x-ray output of the tube, is instantly noted and it is absolutely impossible to treat a patient without the proper filter—a very decided advantage.

The instrument that I have in use at the Illinois Valley Hospital, Ottawa, Illinois, has been in constant use during the past two years and I am frank to say that it has been checked and rechecked repeatedly by all the methods that are known for determining accuracy and it has been quite constant in its performance.

This was worked out with the assistance of Mr. H. N. Beets, formerly of the Department of Physics, University of Chicago, and now connected with the Department of Physics of the Eastman Company, Rochester, New York. It has given me a sense of security and sureness in operation that has made it possible for me to administer dosage with perfect safety that I would not attempt were I depending upon measurement with "milliampere minutes" or "erythema time" alone.

The idea utilized in this instrument is by no means new. The galvanometer principle has been used for years in the measurement of ionization produced by the radiations of radium, and preceding our use of it at the Illinois Valley Hospital it has been used by Weatherwax and Leddy at the University of Pennsylvania and Professor Duane in the Huntington Hospital, Boston, but the conditions under which they worked out their problem were somewhat different from ours. The only thing claimed in the way of originality is in overcoming certain technical difficulties arising from the fact that our therapy tube is operated in the air instead of in a lead lined rounded cylinder or through a hole in the wall from another room, and our problem at Ottawa was one of securing proper grounding of the ionization chamber against the static electricity in the air of the treatment room.

The instrument consists of an ionization chamber attached to the tube stand under the x-ray tube. This is connected through a highly insulated cable that we took from an electro-cardiograph instrument, through a series of B. batteries giving a voltage of about three hundred and fifty volts sufficient to furnish more than a saturation current, through a shunt and knife switch to the ordinary type of student galvanometer manufactured by Leeds & Northrup of Philadelphia.

Our great difficulty was in properly insulating this electrical system against static discharges. We were, in fact, measuring extremely minute electrical currents in the presence of enormous static fields and discharges around the deep therapy tube operating at 200,000 volts with six M. A. of current. After many trials and tribulations, however, these difficulties were overcome.

A lamp throws a beam of light on the mirror of the galvanometer and from this mirror the

light beam is reflected to a scale. As the x-rays pass through the ionization chamber beneath the tube on their way to the body of the patient they produce an ionization current in the chamber which changes the saturation current, constantly placed on the galvanometer, thus causing a deviation of the galvanometer mirror and beam of light which is readily read on the scale. This instrument thus gives us a constant measurement of x-ray production during the whole time of treatment.

The things that it teaches are truly remarkable, that is to one who is not a physicist. The importance of slight variations in milliamperage, the great importance of slight variations in voltage and the importance of accuracy of measurement of distance make it desirable and in my experience at least, indispensable. With its use it is possible to duplicate exactly the treatment from day to day with an error of less than five per cent. as shown by actual measurements—certainly something that cannot be done with the ordinary methods.

In order to check this instrument to see that it is working constantly and persistently we have inserted in the electrical circuit a Cadmium Cell and by merely closing a switch through a water resistance we can cause a definite deviation of the beam of light due to current from this standard cell. We have found the instrument to be practically impervious to varying weather conditions, winter and summer, over a period of two years. The instrument is delicate and yet of sufficient strength to be of practical value for ordinary x-ray therapy work.

Conclusions. This instrument, utilizing the ionization method of measuring x-ray production with the galvanometer, instead of the electroscope, gives us a constant accurate method of dosage measurement throughout the duration of treatment and with it has come a feeling of confidence in our methods and sense of security not possible with less accurate and inexact methods of dosage measurement.

BIBLIOGRAPHY

1. Mackee: X-ray & Radium Treatment. Diseases of the Skin. Lea & Febiger. Philadelphia & New York. 1921. Page 133.

2. Bachem: Bachem, Albert. P. H. D. "Principles of X-ray and Radium Dosage." Publishers self. 502 Oakwood Blvd, Chicago, Illinois. 1923. Page 62.

3. Furstenau: Ibid. Page 64.

4. Ahrens & Beets: Arens, Robert A., M. D. Beets, H. N., M. S. Radiology. Vol. No. 3. Page 294, 1924.

5. Chamberlain & Newell: Chamberlain, Edward W., M. D. Newell, R. R., M. D. American Journal of Roentgenology, Vol. No. 12, Page 511. 1924.

4a. Arens: Radiology, Vol. No. 2. Page 178. 1924.

6. Seitz & Wintz: Dosage Tables for Deep Therapy. Edited by R. Morton, Wm. Heineman, London, 1922. Page 16.

7. Leddy & Weatherwax: Leddy, Eugene T., M. D. Weatherwax, James L., M. A. American Journal of Radiology, Vol. No. 12. Page 516. 1924.

DISCUSSION

Dr. E. G. C. Williams, Danville, Ill.: I think of all the things we have to do with the measurement of the dosage is one of the things most important now. There are hardly any two of us working with the same idea of dosage. Those of us who have been measuring dosage over the past few years appreciate the variation in measurement and the output of the tubes. The tube I am using at present, if run at the condition in which it was first placed in the service, is delivering only about forty per cent. of the amount of x-ray it did at first. In order to overcome this, we are having to increase the time, rate, milliamperage or raise the voltage to bring this up to the standard, which brings in the question of effective wave length.

We feel the quality of x-ray produced at 200,000 volts and with a heavy filterage, is different from that produced at 120,000 voltage. With accurate measurement in measuring the x-ray output of the tube, the next step is to have a simple way of measuring effective wave length, so we can say we are delivering 1,800 E unit or so many R units at a certain effective wave length. When we reach that place, we will be approaching absolute accuracy in x-ray dosage.

I am sorry we have not more time to get into a general discussion of this, because I think it is one of the most important things we have to deal with in this program.

Dr. R. T. Pettit, Ottawa, Illinois: I do not think there is anything further I can say except to say I think that is the thing we need, is the statement of our dosage measurement in R units at a definite wave length and the method of determining this latter is quite simple by the method of Dr. Duane of Boston.

I think now we have methods by which we can administer this therapeutic agent with just as great a degree of accuracy and certainty as in any pharmalogical problem. By modern methods we have overcome a thing which has most certainly been a handicap to the proper therapeutic use of the roentgen ray.

AN ETHICAL CONSIDERATION OF THE INDICATIONS FOR CESAREAN SECTION*

GILBERT FITZ-PATRICK, M. D., F. A. C. S.

CHICAGO

There are two striking features in the literature of recent years regarding cesarean section: First, we have constantly increasing reports of the operation having been successfully performed

*Presented at a joint meeting of the Chicago Medical Society and the North Side Branch, Nov. 2, 1927.

for conditions which ordinarily would indicate little or no obstetrical difficulties, that is to say, that the indications for cesarean delivery have been so widened that the operation is being done for the most trivial complications of pregnancy. The second thing that strikes one in looking through the literature is that cesarean section, as an obstetrical procedure, is being abused. For many reasons, some of which I shall touch on later, the art of obstetrics is being neglected and we are in danger of having this specialized department of medical practice becoming an adjunct of general surgery.

We seem in fact to be approaching the condition when the birth-canal as such is to be regarded, like the appendix and tonsil, as an aberration of Nature or, as Findlay[1] puts it, in which the surgeon views the natural birth passages as a makeshift exit to be used when the surgeon is otherwise engaged.

Now if it is the mature point of view of obstetricians in general that most of the older operative methods of midwifery should be discarded in favor of cesarean section and that, quite apart from technical considerations, the best interests of mother and child and of human welfare are thus secured, then there could be no valid objection to the great extension of the employment of cesarean section but one of the things we have to inquire into is whether this is the mature point of view of obstetricians.

That the cesarean operation is being widely executed with but little restriction there can be no doubt. Polak and Beck[2] say that the operation is being performed daily on patients who present no real obstetrical indication for it, simply because it is the most convenient way to deliver the baby. De Normandie[3] has collected the statistics of cesarean section in the Massachusetts hospitals. He says that these figures vary from 3/10 of one per cent. in one hospital to 18 per cent. in another. The figures can mean but one thing that some physicians are performing cesarean section whenever they want to, irrespective of all real indications. Williams[4] remarks that the operation is being abused in two ways: First, that it was employed unnecessarily; secondly, that it was not always employed at the time of election. He was forced to the conclusion that in many parts of the country the mere diagnosis of a contracted pelvis, irrespective of its degree, is considered a satisfactory indication for operation in ignorance of the fact that from 75 to 80 per cent. of all women with contracted pelvis will deliver themselves spontaneously if given the opportunity. Newell[5] states that cesarean section is being performed indiscriminately by surgeons who have been called in by the attending physician or midwife who, after several hours of watchful waiting, decide the case is one of protracted labor and the surgeon immediately agrees that section is the delivery of choice.

The *British Medical Journal* in an Editorial[6] says that the very ease and safety of cesarean section under modern conditions is leading to its abuse. There is the danger of its coming to be regarded as a sort of panacea for all obstetrical ills. This editorial quotes Newell, the Professor of Clinical Obstetrics at Harvard, as saying:

> At the present time it (Cesarean section) is the most abused obstetrical operation, being performed by comparatively untrained surgeons on patients who present no real indication for it under conditions which render it an exceedingly dangerous procedure. It is not at all unusual at the present time to see patients who have been subjected to cesarean section for no apparent reason, as far as physical examination shows, and the only logical conclusion seems to be that the operative indications have been a slow though normal labor which the attendant has hastened to end in the manner easiest for himself, though often not best for his patient.

It is not alone that cesarean section is being performed with only far-fetched indications, but I believe that by a certain class of operators the operation is being advised and executed merely on the ground that it avoids the pains of normal labor. For obvious reasons reports of this kind do not get into print, but we all know that such operations are being done. Indeed Findley[1] remarks that we learn from our Boston friends that the pampered society woman who is not equal to the demands of labor should be spared the exhaustive results of labor upon her nervous mechanism by cesarean section. Paddock[7] also says that sometimes the wish of the patient to have her baby in this way is considered an indication and that obstetricians boast of rather than conceal the number of these operations.

The question of elective cesarean delivery in so-called neurasthenic women, who are constitutionally unfitted for child bearing, is a dangerous one. Who is to say what the precise conditions

are to qualify for this class? If, as seems to be the case, cesarean section is now being abused and unwarrantedly extended by certain practitioners, these would still be the very ones to consider a woman as "constitutionally unfitted for childbirth" when they wished to do so.

Unquestionably the tendency at the present day is to cut down the time necessary for normal birth processes. Even with a normal sized child in normal position and an ample pelvis with dilatable soft parts, unnecessary manipulations and the forceps are employed on the plea that the woman is thus spared unnecessary pains, but really because the obstetrician is hurried and short circuits physiological processes without due regard to the future interests of his patient.

Now no obstetrician denies that there are certain absolute indications for cesarean section, when no other operative method will take its place, and when it would be criminal neglect to refuse it and thereby sacrifice the life of the child, the mother, or of both.

Apart from such conditions, however, which it is quite unnecessary that I should enter into, the broad questions arise whether it is better to deliver a woman by cesarean section, or allow her to naturally deliver herself; or whether, if labor does not proceed normally and some operative method must be resorted to, if that method should of choice be cesarean section. These questions are not so easily answered as may at first appear. There are several matters to be considered. First, the great ease and comparative safety of cesarean section under modern conditions. It is easier than almost any other important operative method of delivery. Secondly, the method almost certainly insures a living child. Third, we must consider the ultimate effects of the operation on the mother, and lastly the rights of both parents and of the State.

A cesarean section done by a competent obstetric surgeon under proper surgical conditions is not a dangerous operation. Its mortality for the mother should be under 1 per cent. But all surgeons are not equally competent and all patients are not equal surgical risks. Williams[4] thinks that throughout the country the operative mortality is not less than 10 per cent.

Even if it were to be shown that the operative mortality in 1,000 cases of average pregnancy terminated by cesarean section was not greater than the mortality of the same number of cases allowed to spontaneously deliver or be delivered when necessary by means other than cesarean section, such would not obviate the fact that the cesareanized woman is handicapped in future labors.

There are a large number of cases of rupture of the uterine scar in subsequent pregnancies and the mortality is about 30 per cent, in these. Furthermore, we must remember that competent obstetricians who can perform versions, symphysiotomies and other operations not calling for abdominal section, are comparatively few outside the large hospitals and becoming fewer; therefore, it might in a given case be safer to entrust it to a competent obstetric surgeon than to an indifferent obstetrician if some operation has to be done. This would be to say that in the condition of neglect into which the art of obstetrics has fallen in the hands of the ordinary practitioner, the state of affairs is fast becoming that which has been outlined by Williams in which there will be only two types of obstetrical cases, viz: those ending in easy spontaneous labor or needing only the simplest procedure, and those which bid fair to offer some serious complication and should be promptly delivered by the obstetric surgeon.

There is, I am well aware, much difference of opinion, honest difference of opinion, as to what constitutes an absolute indication for cesarean section; but it should not be so difficult to arrive at some authoritative expression of opinion in regard to ruling out several conditions which have been suggested as indications.

In the case of a woman, primipara or multipara, with a normal pelvis and normal sized child, without placenta previa or any other obstetrical condition which might reasonably be considered as an indication for cesarean delivery, *to counsel or execute cesarean section would* appear *prima facie* to unwarrantably expose her to an unnecessary surgical risk at the time, and further to expose her to risks in the event of further pregnancies. No surgeon can guarantee that even a properly executed cesarean section is perfectly safe; nor, even with the greatest care and best technique, can he guarantee that the scar will be proof against rupture in future pregnancies. The larger collections of statistics of cesarean sections show that the operation has most frequently been performed for contracted

pelvis; the mortality in this condition in more than 3,000 cases collected by Holland[8] varied from less than 2 per cent, when the operation was done before the commencement of labor, up to 27 per cent, after attempts at delivery by forceps or version and even after craniotomy.

Polak[9] from a study of 2,200 cases of cesarean section, selected from the leading clinics in America, shows that the morbidity and mortality after this operation is much greater than is found in the ordinary clean abdominal section for other pelvic conditions.

The medical and lay opinion that has gained ground implying that cesarean delivery is safe and easy, is not justified by the published (and very probably much less so by the unpublished) facts. Even if a woman desires a cesarean delivery for any reason, unless there is an obstetrical indication for it, I do not think any surgeon or obstetrician is justified in acceding to her request, much less suggesting this method. It may be said that a woman has a right to take risks or dispose of her own person. Society has claims on her also and the rights of *both* parents have to be considered as well as the rights of the State. If the State is justified in demanding that its citizens shall expose themselves to death in national exigencies, the State is also justified in expecting that its women shall accept the ordinary risks of motherhood and that they shall not be mutilated or handicapped in their functions of providing the State with citizens and continuing the race. It is an injustice to the woman herself, to the husband, and to the State, to perform an unnecessary cesarean section, and the medical profession should not be accessory to such injustice.

The question as to whether cesarean section is the best and safest method of operative delivery, when such method of delivery is absolutely necessary, is a relative one, which depends upon the surgical judgment and the technical ability of the operators. Unfortunately, we are passing through an era in which too scant attention is being given to thorough instruction in practical obstetrics. A working knowledge of pelvic classifications is almost wanting among our more recent graduates; they are unable to distinguish the mechanism of labor in a given group and seem at a loss when asked to describe a specific type. This opinion is founded upon an eight year experience as a member of the Illinois State Board of Medical Examiners. Obstetrical practice is not attractive today to the young practitioner; it promises neither the monetary rewards nor the glamor which surrounds a brilliantly performed surgical operation which is sure to be talked about. It is not, therefore, surprising that sound obstetrical methods are abandoned; and, as I have already said, in the absence of correct knowledge of the execution of such obstetrical emergency procedures, it will perhaps be better to depend upon the abdominal section in a serious case. We cannot stand against an operation which has been proved to be efficacious, unless we are quite sure that another which will be less risky can be performed equally efficaciously. I am not opposed to elasticity in the warrantable limitations of cesarean section, but only to its unnecessary execution without even approximately justifiable indications.

I accept the fact of the extension of cesarean deliveries as an indictment of the inadequacy of obstetrical knowledge and as an indication of obstetrical failure.

The main points which I wish to emphasize in presenting this paper is that today in the United States there are many surgeons doing cesarean sections for insufficient obstetrical reasons. These men are not obstetricians, having no obstetrical judgment, their motives are questionable and in many instances they are actuated only by monetary considerations in exposing a mother to an unnecessary risk. Many of these surgeons are not competent to perform a cesarean operation, according to modern acceptable methods, and the results which do not often come to light are frequently deplorable.

REFERENCES

1. Findley: Northwest Med., 1918: xvii: 67.

2. Polak and Beck: Surg. Gynec. & Obst., 1922: xxxiv: 566.

3. De Normandie: New York St. Jour. of Med., 1922: xxii: 265.

4. Williams: Bull. Johns Hopk. Hospl., 1921: xxxii: 178, and Surg. Gynec. & Obst., 1927: xxv: 194.

5. Newell: Jour. Missouri St. Med Assn., 1924: xxi: 269.

6. Editorial British Med. Jour., 1922: i: 277.

7. Paddock: In discussion on paper by King: Jour. Amer. Med. Assn., 1922: xxix: 112.

8. Holland: Jour. Obst. & Gyne. of the Brit. Empire, 1921: xxxviii: 358.

9. Polak: Amer. Jour. of Obst. & Gynec., 1924: vii: 384.

122 So. Michigan Ave.

THE COUNTY TUBERCULOSIS SANATORIUM A UNIT OF THE GENERAL HOSPITAL*

CECIL M. JACK, M. D.

DECATUR, ILL.

When the Macon County Sanatorium Board was confronted with the problem of where to build its tuberculosis sanatorium, the people of the county already had been educated as to the contagiousness of tuberculosis. This education had been brought about by an intensive campaign under the direction of the local tuberculosis association. The phthisophobia which existed in other parts of the state had entered very little into the problem, and when it was proposed to build the sanatorium on the grounds of, and as a unit of the general hospital, no opposition was encountered. The idea was taken from Dr. Pettit's experiment at Ottawa. He had built a small general hospital on the grounds of his tuberculosis sanatorium with food, heat, laundry, nursing service, etc., furnished by the sanatorium. This seemed sane and practical to our sanatorium board and Dr. Pettit was consulted many times before the final decision was made. He was very anxious to have our board try the plan, so architects were engaged, plans drawn, and work started on the grounds of the Decatur & Macon County Hospital.

Under the Glackin law our county had voted a tax of two mills on the assessed valuation of the county property. Sixty thousand dollars were available in 1922. Five acres of land from the southwest part of the grounds were purchased of the Decatur and Macon County Hospital, a general hospital owned and operated by the Decatur and Macon County Hospital Association. The sanatorium was so placed that it could be connected with the general hospital by a tunnel. (Figs. 1 and 2.)

The plans called for a main two-story building with a wing at either end. The central part contains the general waiting room, clinic rooms, heliotherapy department, and library downstairs, with six patients' rooms and operating room upstairs. Connecting with the main building at the back is a one-story assembly hall, used as a dining room, recreation hall for entertainments, and often for medical meetings and large clinics. Food is served cafeteria style; patients able to go to the dining room assist a little in serving their own meals. Only one wing was completed at first, but as the plans are elastic, other wings will be added as needed. The wing is also two storied, the upper a duplicate of the lower floor, containing twelve rooms leading from a common passage at their back and a common porch in front. The doors are wide so the beds can easily be rolled back and forth into the rooms. In extremely severe weather the very sick patients are not punished by being kept in the open. The center room projects into the porch and is used as a nurse's station, she having full view of all

Fig. 1. The Macon County Tuberculosis Sanatorium.

*Read before Section on Medicine, Illinois State Medical Society, Moline, June 2, 1927.

patients on the porch. The Sanatorium Board is now contemplating thirty more beds for 1927.

To the east connecting the sanatorium with the general hospital is a semi-submerged passageway for the conveyance of the food to the serving kitchen, steam pipes from the boiler room, laundry and other deliveries, and it is also used as a passageway for patients, doctors, and nurses.

The superintendent of the general hospital is also superintendent of the sanatorium, and is responsible to the sanatorium board for its conduct. He engages the medical director and makes him responsible for the medical care of the patients in this unit. This relieves the medical director of the hundreds of little things which have nothing to do with the diagnosis and treatment of tuberculosis.

I may be over-enthusiastic over this plan. However, it seems at least nearing the ideal. Only a few years ago the student or interne saw a case of tuberculosis rarely, and then only when it entered the hospital accidentally. In this small hospital of 150 beds, our next year's service for the internes will call for two months' duty at the sanatorium. All this helps to make the sanatorium a live institution, a workshop to study this most interesting and important disease, instructing the patient as well as teaching the young doctor to diagnose early one of the five diseases causing the highest death rate. The average nurse who is trained in a general hospital never actually comes in contact with a case of tuberculosis, and often the first case she is asked to nurse when she goes out into private work is one of this disease. Under the unit plan, a training in the sanatorium is part of her course. What better opportunity is there for the nurse to study the psychology of nursing?

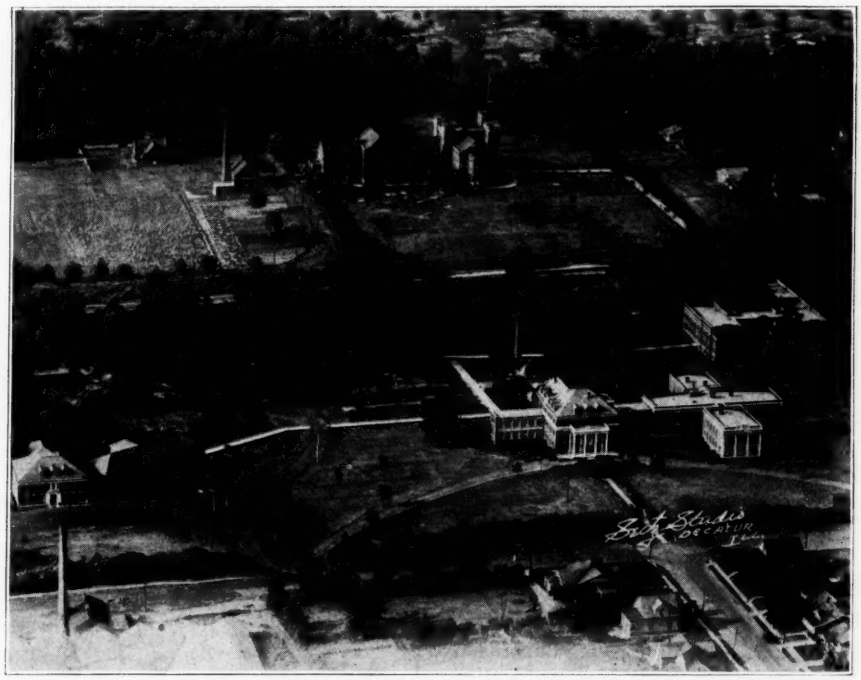


Fig. 2. Air view of Macon County Tuberculosis Sanatorium as a unit of the Decatur and Macon County General Hospital.

Food in a tuberculosis sanatorium is its most difficult problem. We doubted at first the feasibility of combining its kitchen with that of the general hospital. The diet should be carefully balanced, of ample quantity and served in an appetizing manner, and the patient should gain steadily in weight. The last forty patients discharged from the sanatorium weighed on an average of 103 lbs. on entering and 117 lbs. on leaving, the average length of stay being 156

days. Each received an average of 2,704 calories per day. The average gain was approximately 1 lb. every ten days or 14 lbs. per patient. The basic requirements of these particular patients were less than 2,000 calories per day. It is, therefore, evident that they had an abundance of food, or 704 calories per day above the required amount. The dietician watches that the meals are well balanced and served in an appetizing manner.

Advantages: I believe under this plan the advantages gained are principally by the patient, and this is as it should be. The patient receives expert service from the clinical and x-ray laboratories of the general hospital, nursing service from a nursing school whose nurses do not live in the sanatorium taking up valuable space which should be utilized by patients. In the interne the director is furnished an assistant, relieving him from many details which he must take care of when he is alone. A good director should not be asked to stain the sputum smears or develop the x-ray pictures. If he does this work, he quickly becomes stale, and your sanatorium degenerates into a boarding house for the tuberculous.

A reduction in the overhead by using the heat, laundry, food, nursing service, etc., from the general hospital, may not mean such a reduction in actual cost as you would imagine; the gain will be found in the service to the patient. This I consider very important. You know there is a psychology in getting well of tuberculosis. The more exact we are in diagnosis; our laboratories, x-ray, internes, heliotherapy, and occupational therapy all go to assist in getting our patient well. If the sanatorium is in some far corner of the county, and in many instances it is on the grounds or part of the county poor farm, we cannot expect much as to rapid recovery. If the director is interested in a special line of laboratory work, he has at his command a well equipped laboratory in which he can work. The same may be said of the x-ray. If he wishes to hold clinics throughout the county, he will have time for this without being bound down by monotonous routine. He will even have time to attend medical meetings, contribute to them, and bring back new ideas which will benefit the tuberculous patient.

Mistakes. The roof of the assembly hall was made hipped. It should be flat, making a splendid place for heliotherapy. The other inexcusable mistake was in the width of the hall in the wing; it is not wide enough to turn a bed from room to hall.

Statistical. There are forty-seven counties in Illinois that have voted to tax themselves to assist in eradicating tuberculosis, either by building sanatoria or by taking care of their tuberculous sick in other sanatoria. Seventeen of these counties have already built and are operating sanatoria. I will not include Cook County in this resume. One county will vote on this question in June. These sanatoria are mostly in the northern half of the state, there being only one south of Jacksonville. They range from twelve to one hundred and twenty-five beds, and cost from $12,500 to $232,000. They are now operating at an average cost of $3.03 per patient

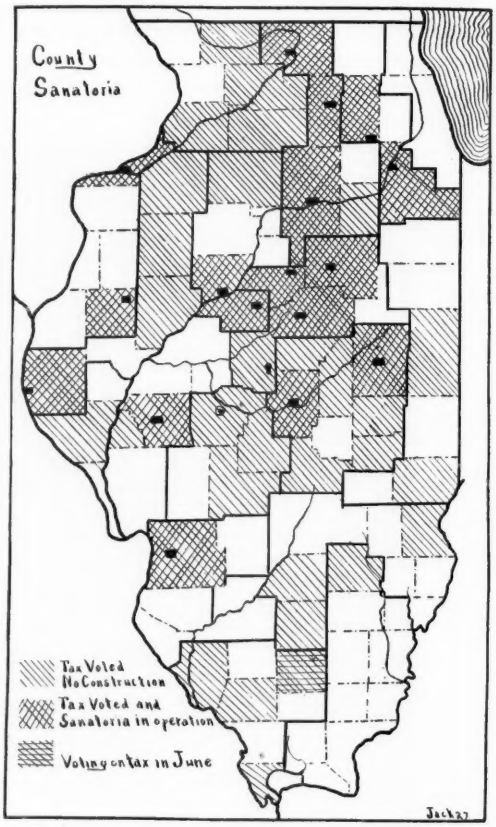


Fig. 3. Map of Illinois, showing status of County Sanatoria.

per day. Ten out of the seventeen sanatoria have full time directors, and of these Macon County is the only county which has built its sanatorium as a unit of a general hospital. The Macon County Sanatorium operated last year at $3.35 a patient, a cost slightly above the average. This will be materially reduced when the other wing is added.

Scored by the rules of the American Sanatorium Association, the Macon County institution scores 94.5, which puts it in Class A. Our score was lowered on account of the lack of proper occupational therapy. This scoring was done by Dr. William S. Keister, Public Health Physician of the City of Decatur, an expert in this kind of work.

Conclusion. After being in operation four years, a time sufficient for a thorough trial, I consider the county tuberculosis sanatorium as a unit of a general hospital, not only feasible but practical, and I recommend it to other counties contemplating building. I do not consider each county as the proper building unit, as some counties are too small to support a modern sanatorium. These could join other counties in building a sanatorium. This and many other phases of sanatorium work I should like to discuss more fully, but time will not permit.

Disadvantages. This part of the discussion I leave to the Society, hoping that you will bring up points I have not covered.

STATISTICAL CHART FROM SEVENTEEN COUNTY SANATORIA

County	Town	Total Cost	Cost Per Bed	Cost Per Patient Per Day	Total Cases 1926	Deaths 1926	Average Length of Stay.	Nurses	X-ray	Director Full Time	San. Part of Gen. Hos.	Beds
Woodford	Minonk	$ 22,000	$1,833	$?	23	2	300	3	—c	—	—	12
Rock Island	Rock Island	12,500	694	2.75	33	5	...	3	—c	—	—	18
DeKalb	DeKalb	54,000	2,571	3.60	54	9	152	4	—a	—	—	21
Livingston	Pontiac	146,000	4,866	2.50	62	14	180	4	—b	+	—	30
Morgan	Jacksonville	135,000	4,355	2.14	57	8	213	5	—c	+	—	31
McDonough	Bushnell	130,000	4,063	3.40	99	7	108	5	—	+	—	32
Tazewell	Mackinaw	166,000	3,052	2.65	68	6	163	5	—c	—	—	38
Macon	Decatur	160,880	4,022	3.36	96	8	143	7	—b	+	+	40
Champaign	Urbana	142,000	2,958	2.65	93	6	182	7	—c	+	—	48
LaSalle	Ottawa	93,200	1,864	2.23	220	9	28	8	+	—	—	50
Kane	Aurora	135,000	2.500	2.23	134	14	173	6	—b	+	—	54
McLean	Bloomington	120,577	2,192	3.54	152	9	109	7	—c	+	—	55
Will	Joliet	185,000	2,984	3.15	119	29	133	7	—c	—	—	62
Adams	Quincy	160,000	2,461	2.12	...	54	182	5		+	—	65
Winnebago	Rockford	189,195	2,702	2.95	146	7	284	8	+	+	—	70
Peoria	Peoria	240,750	5,210	3.52	95	8	102	6	—c	+	—	75
Madison	Edwardsville	282,126	2,257	4.50	82	14	?	5	+	+	—	125
Average		$139,660	$2,975	$2.95	95	12	168	5				48

DISCUSSION

Dr. Samuel E. Munson, Springfield: I think it has certainly been a splendid thing for Dr. Jack to get all this data together.

The point to be emphasized is that the tuberculosis sanatorium should be a unit of the general hospital. It has been unfortunate in the past that some of the other diseases, as well as tuberculosis have been separated from the general hospital, from the standpoint of economy and clinical study and observation by the staff. Dr. Jack has set forth the many reasons why it is better for the patient and why it is better for the county, to operate as a part of the general hospital than as a separate unit.

Dr. Jack has been in the tuberculosis work since its incipiency. He has been active in the State Tuberculosis Association and other associations for many years. Of course, he is a man doing internal medicine and is not directly connected with the treatment of the cases.

I think that this paper will certainly be of very great value to those counties that contemplate special buildings for their tuberculous cases, isolation or other special units, on account of the expense of operation and administration.

There are few sanatoria in the United States that are connected with the general hospital.

You know a few years ago, that is, when the tuberculosis work first began, in considering the building of a sanatorium there was as much objection to its location as there was in the case of what they formerly called a "pest house for smallpox. They located them away up in the woods somewhere. It was thought necessary in some instances on account of the climate.

But this matter of having the sanatorium as a unit of the general hospital is the right idea. I heard this mentioned several years ago by some of the men East. In cases where it is not connected with the general

hospital the staff have lost the opportunity of studying all tuberculosis cases, and all use of the clinical material they furnish. That was because of the unfortunate condition that has been prevalent in the past.

I certainly wish to very highly commend Dr. Jack for presenting this paper with its valuable data.

CHLOROMA*

RICHARD C. GAMBLE, M. D.
CHICAGO

Green tumors resembling leucosarcoma, originating apparently in the bones of the skull, less frequently in the ribs and sternum, have been reported in the literature since Allan Burns made the first description in 1823. The very appropriate name chloroma was first used by King in 1853, and since then practically all of the cases, about one hundred in number, have been reported under that name. With the better understanding of the nature of the leukemias and other diseases of the blood forming organs during these years, our knowledge of chloroma has increased and it has been classed in this group, but is considered as a distinct clinical entity. The literature contains many excellent case reports, as complete as the general pathologist or pediatrician could wish, but very little concerning the microscopic study of the eyeballs. The following case was diagnosed rather early, observed continuously, a complete post-mortem examination made, and the posterior half of each eye was obtained for study. (See Fig. 1.)

CASE REPORT

Margaret M., aged seven years, of German parents, entered the Children's Memorial Hospital, October 9, 1925. The child's mother had noticed that the left eye had been unusually prominent for the preceding ten days, and the right eye for seven days. The child had complained of moderate pain in the eyes and of some pain under the left ear. She had frequent frontal headaches, for which glasses had been prescribed six months previously with some relief. She had been a very nervous irritable child during the past two years, but about two weeks before entering the hospital a decided change took place and she became very dull and listless.

Her birth was normal, her birth weight was five pounds, and her development was very slow, both mentally and physically. She had measles, mumps and chickenpox during the first four years of life, and at five years had a second degree burn of the face, neck, right shoulder and left arm and hand. At this time a general physical examination was negative, except that there was a minor deformity of the left fifth toe and a positive throat diphtheria culture, which later became negative. She had been subject to frequent sore throats. The family history was negative.

General physical examination showed a well nourished white girl, not acutely ill but somewhat listless. There was noticeable pallor of the skin. There were pink scars of an old burn over the face. There was proptosis of both eyes, especially of the right, and some divergence. Both eyes were limited in upward movement and the right eye was limited in abduction. Upon pushing the eyes back into the orbits a resistance was felt. A tumor mass was palpable in the upper outer quadrant of the right orbit firmly attached to the bony rim. Both eyeballs were normal externally. The media were clear in each eye. The right disc margin was

Fig. 1. Moderate proptosis, most marked in right eye, paresis of left facial nerve.

distinct, except below, where the veins were tortuous and distended and buried in a few places by edema. The left disc margin was slightly blurred in the inferior nasal quadrant. Vision was apparently good, but was not measured.

There was some tenderness over each mastoid area; the right ear drum was normal and the left was slightly red. There was tenderness over each frontal sinus, more marked on the left side. The nasal mucosa was swollen and there was considerable discharge from the left nostril. The mucous membrane of the throat was injected. There was marked tenderness under each angle of the jaw, especially on the left and several enlarged lymph glands below the left ramus. There was no rigidity of the neck. The thyroid gland was palpable. The heart was not enlarged; its action was normal except for a short rough systolic murmur heard over the pulmonary area. The pulse was normal. The lungs were clear. The abdomen was large and protruding; there was no tenderness and no tumor masses.

* Read before the Chicago Ophthalmological Society, March 21, 1927.

The liver extended one inch below the costal arch. The spleen was not palpable. The extremities were negative, the patellar reflex was weak on the left side and not obtained on the right. There was some enlargement of the cervical and inguinal lymph glands.

Laboratory examination showed:

Blood count: R. B. C. 2,800,000. Hemglobin 65%. W. B. C. 21,700.

Polynuclears	12
Small lymphocytes	72
Large lymphocytes	13
Basophiles	1
Eosinophiles	1

Vaginal smear: Negative.

Diphtheria culture: Negative.

Urine: Albumin ..... Trace
Sugar ..... None
Acetone ..... None
Hyaline casts ..... Few
Pus cells ..... Many

Von Pirquet: Negative.

Blood Wassermann: Negative.

Bence Jones protein test: Negative.

Diagnosis: Probable chloroma.

Subsequent course: Oct. 10. Dr. Joseph Brennemann notes: I believe that there is not much doubt but that there is some slight flat, painless, not sharply circumscribed swelling in both temples, most prominent just above the zygoma and somewhat more marked on the left. The enlargement of the glands under the angle of the jaw is probably due to the same cause. There is not much general adenopathy and especially not in the cervical glands, that are usually involved later. There is a small denuded reddish area on the upper part of the right tonsil. It looks as though it might be the beginning of a characteristic leukemic change. The abdomen feels tense and hard, rather as though the abdominal wall were thick and hard than as though there were an underlying tumor. This makes it rather hard to palpate the spleen and liver. I can not make out the former. The bulging eyes, the enlarged palpebral fissure, especially on the right side, the open mouth, the characteristic swellings over the temples, together with the leukemic blood picture makes a diagnosis of chloroma very probable.

Oct. 14. Left facial nerve paralysis, complete in lower half. Left mastoid very tender. Left ear drum is red and bulging, definite pulsation seen. Also redness and bulging of anterior wall of canal.

Oct. 15. More bulging of eyes, conjunctive of right eye protrudes. Left ear drum paler, but bulges and seems to have a solid growth behind it. No discharge. Cervical and inguinal glands larger. More venous stasis in retina, discs less distinct.

Blood count: R. B. C. 2,100,000. Polychromatophilia.

Hemoglobin 68%. Color index 1.28.

W. B. C. 24,700.

Differential with oxidase test:

Polys	9
Large lymphocytes without granules	7
Small lymphoctyes without granules	27
Mononuclears—large cytoplasm, many granules	32
Mononuclears—small cytoplasm, many granules	2
Mononuclears—small cytoplasm, few granules	22
Mononuclears—large cytoplasm, without granules	1

Clotting time: 3 minutes.

Bleeding time under 4 minutes.

Platelet count: 209,000.

Mother's blood: Wassermann negative.

Aunt's blood: Wassermann negative.

Cross agglutination test: Some clumping with mother's blood, aunt's blood compatible.

Oct. 17. X-ray treatment given. Discharge from left ear.

Oct. 18. Great bulging and edema of conjunctiva below right eye.

Oct. 19. More bulging of right eye. Left eye appears to have receded and can be closed. Spleen questionably palpable.

Oct. 20. Right ear: Swelling anterior to handle of hammer, size and shape of small shot, probably an infiltration. Left ear: Drum has appearance of being displaced forward and downward, probably periosteal infiltration.

Oct. 28. Hears watch tick 5 inches from each ear. X-ray treatment.

Oct. 29. Eyes bulging more than ever.

Nov. 1. Spleen distinctly palpable.

Blood count: R. B. C. 2,820,000. Anisocytosis and polychromatophilia.

Hemoglobin 58%.

W. B. C. 25,100.

Graham Stain:

Polys	6
Large lymphoctyes, non-granular	12
Small lymphocytes, non-granular	14
Large mononuclears with large nuclei and few granules (myeloblasts)	30
Large mononuclears with small nuclei and many granules	38
Total granular cells	74

Spinal puncture: 8 cc, normal pressure, 3 cells, no globulin.

Sugar 65 mgr. per 100 cc fluid.

Wassermann negative.

Nov. 3. Marked chemosis of right eye, small area of corneal infiltration near limbus at 6 o'clock in left eye.

Nov. 10. X-ray treatment.

Nov. 13. Both corneae infiltrated, surface roughened, greenish color. No perforation. Very marked chemosis and proptosis, eyes cannot be closed.

Blood count: R. B. C. 2,110,000, reds pale and irregular.

Hemoglobin 35%.

W. B. C. 50,800.

Differential count:

Polys	13
Large lymphocytes	25
Small lymphocytes	30
Myeoblasts	20
Myelocytes	9

Transitional 2
Cells with Deiters nucleus..... 1

Nov. 24. Patient very weak. Left ear canal almost occluded. Foul discharge from both ears. Spleen one finger below costal margin. R. B. C. 1,150,000; W. B. C. 34,000.

Fig. 2. Extreme proptosis, with ulceration of both corneas, complete paralysis of left facial nerve.

Dec. 2. Coughs a great deal Lungs clear. Purpuric spots on left thigh and back.

Dec. 3. Died.

Note: There was nothing characteristic in the temperature, pulse and respiration. The temperature varied between 98 and 102, the pulse between 80 and 150, and the respiratory rate between 20 and 50, the higher figures near the end of the illness. (See Fig. 2.)

Post-Mortem Report. Post-mortem examination by Dr. W. G. Hibbs showed both orbits almost entirely filled with green tumor tissue, pushing the eyeballs forward and extending backwards into each middle fossa. The bones of the base of the skull and both temporal bones were diffusely ramified with soft green new-growth. The dura was studded with pinhead to 2 cm. sized nodules, some red-brown, others green; these were most numerous at the base, in each middle fossa. The calvarium was tinged olive green. There was a foramen magnum pressure furrow 4 mm. deep. The fat of the scalp in places was green, likewise the subcutaneous fat in the midline of the trunk. There were small petechial hemorrhages in the skeletal muscles, in the greater omentum and in the peritoneum. The posterior surface of the upper part of the sternum was pale green, due to the small tumors in the mediastinum. The surface of each lung was pale dirty green mottled with hundreds of red-brown areas, likewise the pleura where it was in contact with the ribs and spine. The spine was markedly infiltrated with green tumor tissue. The heart was normal except for many small hemorrhages. The blood clots were brown. The lungs on cut surface were mottled red and brown, no green. The mesentery was almost completely occupied by green lymph nodes, and the lymph nodes along the abdominal aorta were green. The liver extended four to five centimeters below the costal arch, on cut surface it was mottled with fat in small lobular areas; no green areas were seen. The spleen was huge, weighed 170 Gm. and on cut surface was normally mottled pink and red, no green. The right kidney was mottled with green on cut surface, the left was entirely green. Both ovaries were green. The thyroid had a greenish tinge. The thymus was of normal size and was mottled with green. The adrenals showed no change.

Diagnosis: Chloroma. (See Figs. 3, 4, 5.)

The posterior half of each eye was removed post-

Fig. 3 Fig. 4 Fig. 5

Fig. 3. Right eye. Low power. Diffuse infiltration of choroid.
Fig. 4. Left eye. Medium power. Both stroma and vessels of choroid filled with white blood cells.
Fig. 5. Same part of choroid as Fig. 4. High power. Showing the variation in the cells.

mortem, fixed in formalin, sectioned in paraffin and stained with hematoxylin and eosin. Both eyes are alike. The retina is detached, due to loss of support by the vitreous, and forms a central strand. Only a small portion is seen in the sections. There are a few small retinal hemorrhages. The most striking pathological change involves the choroid. Its thickness is increased from two to six times by a diffuse infiltration of various types of white blood cells, both inside of the choroidal vessels and in the stroma. The predominating cell is a little larger than a large lymphocyte, has a moderately dark staining single round or oval nucleus, and a non-granular violet colored cytoplasm (with this stain). These cells should probably be classed as myeloblasts. In addition a few small lymphocytes, some large lymphocytes, a small number

Fig. 6 Fig. 7 Fig. 8

Fig. 6. Section of tumor mass from orbit. The muscles are split into separate fibres by the invasion of the growth.

Fig. 7. Section of tumor mass from orbit. Invasion between the fat lobules. A vein is partially filled with the cells. The artery is empty.

Fig. 8 Tumor invading the dura.

polynuclear leucocytes and rarely an eosinophile with either a single or multiple nucleus is seen. Mitotic figures are present in a few of the myeloblasts. Some of the choroidal vessels contain erythrocytes, but they are few in number compared with the white cells. The same types of cells are seen within the lumen of one of the vortex veins and in the vena centralis retina. The optic nerve is slightly edematous in its intraocular portion and is entirely free from cellular infiltration. The sclera shows no change. Pathological diagnosis: Leukemic infiltration of the choroid; papilledema; retinal hemorrhage.

Sections of the tumor mass from each orbit are alike. The various types of cells seen in the choroid are present here in about the same proportions. The cells are quite closely and evenly packed together supported by a moderate amount of reticulum. Many small endothelial tubes are seen, filled with these cells and an occasional erythrocyte. Veins where seen are many times partially filled with these cells, the arteries never. The extrinsic ocular muscles are in many places separated into individual fibres by the infiltration of the tumor cells. Sections of the dura mater show a similar splitting up into small fibres. Many small petechial hemorrhages are seen in the dura and in the mass of tumor tissue invading it, but no necrosis.

Sections of other organs show the same filling of the veins and infiltration of the tissues by these cells, the kidney and lung in much the highest degree. (See Figs. 6, 7, 8.)

COMMENT

This case may be regarded as a usual one of myeloid chloroma, its typical features being:

1. Occurrence in a child seven years old.
2. Proptosis of both eyes due to bilateral, asymmetrical, green tumor masses originating from the bones of the skull.
3. Moderate degree of leukemia with many granular myeloblasts and increasingly severe secondary anemia.
4. Greenish leukemic infiltrations and nodules in various organs.
5. Involvement of second, seventh and probably eighth nerves.
6. Enlargement of regional lymph glands and spleen.
7. Rapid course.
8. Fatal termination.

Some of these features are lacking, or at least changed in many cases of undoubted chloroma. The majority do occur in children, a few in infants and a fair number in adults. A few cases have been reported in which the primary site seemed to be in the ribs or sternum. The degree and type of leukemia is probably the most variable feature of all. White counts have been reported, varying from 6,200 (Bedell) to 1,880,000 (Stienon), although in most cases the white

count has been less than 50,000, and the predominating cells described as large lymphocytes, myeloblasts, or mixed. No cases with small cell lymphatic leukemia have been reported, although in cases with low white counts the polynuclears are decreased and the lymphocytes increased. There is considerable variation in the degree of enlargement of the regional lymph glands and of the spleen, but extreme enlargement is rare. The greenish color of the tumor is of course usually present, many cases were not diagnosed until the green masses were seen post-mortem, but cases have been seen, typical in other respects, yet the tumor masses lacked the green color. The rapid course and fatal termination is common to all cases.

Certainly the most interesting and striking part of the disease is the green masses and the leukemic blood. The cause of the green color is unknown, but has been ascribed to blood pigment and to certain fats. It fades out upon exposure to air for a few minutes. It is observed both in the original masses in the bones and also in the filtrations or metastases in the various organs. Green blood clots have also been seen. An excellent description of this subject is given in the paper by Dock and Warthin. A great amount of study has been given to the type of leukemic change found in the blood and to its relation to the other leukemias. It is the opinion of the majority of pediatricians that most cases of chloroma are of the lymphatic type, that is, the cells composing the tumor masses are large lymphocytes or their progenitors, and the same type of cell is the predominating one in the blood stream. On the other hand, Burgess states that chloroma is probably always myelogenous. Others give the opinion that both types of cell may occur equally in the same case. It is difficult to decide which of these opinions is correct because most of the cases have been observed by men who are not expert hematologists, and in many of these cases no oxidase test was made, and without this differential test it is extremely difficult to tell which type of cell is present, and even this test is not always decisive when applied to early undifferentiated white corpuscles. This test takes advantage of the fact that the cytoplasm of the polynuclear leucocyte and its progenitors, the myeloblasts and myelocytes contain an oxidizing substance, and that the cytoplasm of the cells of the lymphatic type do not contain such a substance. The result is that after making the test there are seen dark blue granules in the cytoplasm of the cells of the myelogenous series, but not in those of the lymphatic series. Inasmuch as chloroma almost always originates from bone it seems probable that the cells are mostly myelogenous, and lymphatic only to the degree of involvement of the lymphoid tissue of the bone marrow.

The relation of chloroma to leukemia has caused considerable difference of opinion, some believing that it is simply an atypical type of leukemia and does not deserve being classed as a separate disease. The most illuminating information on this question I find in Sternberg's classification of diseases of the blood forming organs, and in MacCallum's modification of it which is as follows:

A. Hyperplasia of Lymphoid Tissue.

a. With leukemic blood—
   1. With swelling of lymphoid tissue and lyphoid infiltration of organs. Chronic and acute lymphoid leukemia.
   2. With tumors originating in various situations and invading tissues. Leucosarcoma. Lymphoid chloroma.

b. Without leukemic blood—
   3. With tumors involving bone marrow. Lymphoid myeloma.
   4. With general swelling of lymphoid tissue. Pseudoleukemia.
   5. With regional invasive tumor-like growth. Lymphosarcoma.
   6. With stigmata of general maldevelopment. Status lymphaticus.

B. Hyperplasia of Myeloid Tissue.

a. With leukemic blood—
   7. With myeloid infiltration of organs. Myeloid leukemia.
   8. With tumors of myeloid tissue. Myeloid chloroma.

b. Without leukemic blood—
   9. With tumors of myeloid tissue. Myeloid myeloma.

Study of this table suggests the idea that with the occurrence of a great proliferation in the bone marrow, spleen or lymph glands, of the various types of white corpuscles, one factor that determines which of the above diseases is to occur is one of permeability, probably of the walls of the capillaries, and this same question of permeability is involved in the occurrence of the leukemic infiltrations and metastases found in some of these diseases. The ability of the cells

to permeate the vessel walls is shown in Fig. 5. Here can be seen these cells both within the lumen of the vessels and also in the stroma of the choroid.

The leukemic infiltration of the choroid is found only in chloroma. It has been described in leukemia by Hudson, Liebreich, Meller, Deutschmann and others. An excellent photograph of this condition from a section by Coates can be found in Parson's Pathology of the Eye. It is the chief cause of the very pale or even yellow appearance of the fundus which is characteristic of leukemia. That it can also occur in chloroma and when the white cell count is much lower than is usually the case in leukemia is of some clinical importance. The possibility of a green color being seen with the ophthalmoscope is suggested. In this case opacity from corneal infiltration prevented a satisfactory fundus examination in the later stages of the disease.

30 N. Michigan Ave.

BIBLIOGRAPHY

A complete bibliography up to 1922 was given by Dr. Bedell in his paper on chloroma presented at the International Congress of Ophthalmology at Washington, D. C., in 1922. Since then the following papers have been published.

Ernst, P.: Ueber den Farbstoff des Chloroms. Verhandl. deutsch. path. gesellsch. Jena. 1921, vviii, 334.

Sidler-Hugenin: Netzhautveranderingen bei einem chloromfall. Klin. monatsbl. f. Augenh. Stuttgart. 1921, lxvii, 55-62.

Ravenna, F.: Chloroma scolorato. Gigor. di clin. med. Parma, 1921.

Brahn, B.: Ueber den Chloromfarbstoff. Virchow's arch. f. path. anat. Berlin, 1922, cxxxvii, 234.

Caronia, G.: Contributo alla conoscenza del chloroma nell 'infanzia Pediatria. Naples, 1922, xxx, 439-445.

Rowe and Hirschboeck: A case of myeloid chloroma. Am. J. Dis. Child. 1922, xxiii, 239-246.

Foot and Jones: Myelogenous Chloroma. Am. J. Dis. Child. 1923, xxv, 379-391.

Nasso, I.: Un caso di chloroma in una bambina di sette mesi. Pediatria. Naples, 1923, xxxi.

Allison, R. G.: Bone findings in Clorina. Radiology, 1924, iii, 388-393.

Meyer and Berger: Contribution a l'etude du chlorome. Arch. d. mal du coeur. Paris, 1924, xvii, 635-652.

Heissen, F.: Chlorom und Zentralnervensystem. Ztschr. f. d. ges. Neurol. und Psychiat. Berlin, 1925, xcv, 248-255.

Tramontano and Pansini: Chloroma. Pathologica. Genoa, 1925, iv, 552.

Ashby and Sellers: A case of choroma. Lancet, 1923, 1, 1263.

Roberts, W. H.: A case of chloroma. Am. J. Ophth. 1923, vi, 805-811.

Foot, N. C.: Myelogenous chloroma. Cincinnati J. Med. 1923, iv, 447-450.

Goodall and Alexander: Acute myelocythaemia and chloroma. Quart. Jour. Med. Oxford, 1923-4, xvii, 113-128.

Manini, L.: Un caso di chlorome. Riv. ospedal. Rome, 1924, xiv, 1-19.

Brannan, D.: Bull. Johns Hopkins Hosp. March, 1926, 189-216.

Barnet, C.: Arch. Ophth. liii, 454-469, Sept. 1924.

Darnall: Mil. Surgeon, liv, 212-217.

DIABETIC COMA*

G. D. HAUBERG, M. D.

MOLINE, ILL.

Coma formerly was, and to a lesser extent still is, the spectre that haunts the life of every diabetic. Acidosis and coma are preventable accidents, but they still occur more frequently than they should. Foster[1] gives three causes for acidosis and coma; these are, infections, lapses in diet, and failure to use the accustomed amount of insulin. To these I would like to add a fourth —the activities of the various cults and irregulars. We have seen patients who, in the morning, had been treated and assured by the irregulars that they were doing nicely and would be all right in a few days. With the onset of coma in the afternoon, the family would take matters in their own hands and call in competent help. We have seen followers of faith cures in coma and have seen them return to the faith, even though they seemed to have acquired a good diabetic education while in the hospital. We carried one patient through three attacks of coma only to have coma develop the fourth time and die without a physician being called.

In the severely diabetic a seemingly trivial infection may be sufficient to precipitate acidosis and coma, unless proper measures are instituted. With the onset of any illness, the patient should be warned to go to bed, keep warm and drink plenty of liquid. When the appetite fails, or the illness demands a change of diet, it has been our custom to give milk and orange juice, or milk and oatmeal, or all three of these, in sufficient quantity to cause the fat obtained from his own body to be completely oxidized. Insulin is given in sufficient quantity to keep the patient sugar free, or nearly sugar free. In this way they may go through pneumonia, or other serious illness, without showing the effects of the disease any more than the average person.

We cannot help but admire the will power and self denial displayed by the majority of the diabetic patients as they adhere to their prescribed diets. Monotony is very irksome, so is it any wonder that a diabetic tires of his never changing diet and breaks away from the routine by partaking of the forbidden articles of food? We

*Read at annual meeting of Illinois State Medical Society, May 29, 1927.

are all familiar with the educated diabetic, who will indulge at the soda fountain and excuse himself by saying that he obtains protection by taking an extra dose of insulin. Unfortunately all do not take the protective dose, or they break diet too frequently and the results are disastrous.

Equally disastrous is a failure to take the accustomed amount of insulin. Many diabetics are as dependent upon insulin as we are upon the air we breathe. When the supply fails and they do not reduce their diet accordingly, they promptly show signs of coma. Fortunately nearly every crossroad's drug store is stocked with insulin, so that danger from this source is becoming less and less.

During a mild diabetes the patient merely has a little too much sugar in the blood and excretes some sugar in the urine. The pancreas furnishes sufficient insulin to cause enough of the sugar to be oxidized to completely burn the fats of the food eaten, the weight is maintained and the patient feels quite well. As the condition increases in severity, less and less insulin is produced. The digestive powers of the gastro-intestinal tract remain unimpaired, the food is broken down and converted into glucose and the higher fatty acids as usual. The net result of this is that though much food may be eaten and digested very little may be utilized. The cells of the body are demanding fuel for heat and energy, but are unable to completely burn the bountiful supply, because of the lack of the hormone, which results in partially oxidized fatty acids and the production of ketone bodies. Nature then falls back on its own resources and attempts to furnish fuel by burning the fat of the body, which again results in the production of more ketones and acidosis is well under way.

Coma. The situation now rapidly becomes worse. The patient breathes deeply and the breath is laden with the sweetish odor of acetone. The pulse is quickened, is small, and of poor volume. The heart tones lose their usual snap and seem more distant. The skin becomes cyanosed and the extremities become cold and may be mottled. While this is occurring he becomes nauseated, has abdominal pain and may vomit. The earlier restlessness gives way to a stuporous condition, or to absolute coma. At first he is afraid to drink, because of the nausea and for fear the pain will be increased. Later he is not aware that he is thirsty. During this time water is being abstracted from the tissues by the increased ventilation of the lungs, by the vomiting, and the increased output of urine. The decrease in the intake of liquids and the greater output of body fluids rapidly dehydrates the unfortunate individual. The dehydration is evidenced by the dry, harsh skin, which hangs flabbily from the body. The tongue is dry, shining and red. The eyes are sunken and the tension of the eyeballs is decreased. Altogether he presents a miserable picture, and we are not surprised to hear the attendant say, "Doctor, there doesn't seem to be much chance."

The Heart. A marked myocardial degeneration[2] is found in the cases coming to autopsy, and is probably due to the effect of the acidosis on the heart-muscle. For this reason it is well to spare the heart in every way possible, as sudden death is not uncommon.

The Blood. The changes in the blood, as shown by chemical analysis, are interesting and worthy of note. Labbe[3] calls our attention to the fact that nephritis may complicate diabetes and cause uremia. Blood chemistry may be necessary to differentiate diabetic coma from uremic, or other forms of coma. In diabetic coma the blood sugar averages between 600 and 800 milligrams to one hundred cubic centimeters of blood. Much higher readings may occasionally be obtained.[4]

The renal epithelium may show the results of being irritated by the constant passage of sugar and this may be reflected in the blood by an increased blood urea nitrogen. The finding of 40 to 90 milligrams is not unusual, especially in people of more advanced years. In these people a true nephritis is not uncommon. These figures most always show a marked drop as the diabetic condition improves. The carbon-dioxide combining power of the blood is markedly lowered and very low readings are reported by many observers. Mosenthal[5] says that when the CO_2 combining power has dropped to 8, death usually ensues.

The Urine. The amount of urine is quite often reduced after treatment is well under way and measured amounts for 24 hours may be only 300 or 400 c.c. This is perhaps due to the dehydration which occurs and to the nephritis which is present. Sugar is usually present in high per-

centages in single specimens. Albumin and casts are not at all uncommon and these quite frequently disappear after a few days. Acetone may be present for some time after the coma has cleared up.

TREATMENT OF COMA

The successful treatment of coma demands quick action and a close attention to detail. This necessitates the development of a routine procedure, which may be varied to meet the requirements of each individual. To depend upon any one procedure and neglect the others is to court disaster for the patient.

If insulin is valuable to a diabetic, it is priceless to the patient in coma. The earlier insulin is administered, the smaller the initial dose required, and more quickly results are obtained. We are in the habit of giving 30 to 50 units for the first dose, which is administered hypodermically, though in the more severe cases it is advisable to give half of it intravenously and if there is no improvement repeat in 2 or 3 hours. Following this, a dose of 10 to 20 units is given every 4 hours. With each dose of insulin 200 grams of orange juice and 10 or 15 grams of glucose are given. Before each dose of insulin is given the urine is tested, and if sugar is no longer present the insulin is omitted. The amount of sugar in the blood should be estimated from time to time and as normal levels are approached the dosage of insulin is reduced. It is our belief that it is more important to combat the acidosis vigorously and to subsequently treat the diabetes, so we are not concerned if sugar continues to appear in the urine until after the coma has cleared.

As these patients are dehydrated, the body fluids should be replaced as quickly as possible. A liter of normal saline is given at once by hypodermoclysis and may be repeated as often as is necessary. In the more desperate cases, the intravenous route may be used, but caution must be observed not to throw too much of a burden upon the degenerated heart-muscle, lest sudden death occur. Warm normal saline, or tap water, or glucose solution, should be given by proctoclysis. As the bowels often have been neglected, it is wise to give a cleansing enema of warm water before starting the proctocylsis. We have been singularly fortunate in that all of our patients have been able to swallow, so hot coffee, broth, and orange juice have been administered freely by mouth. If the patient has been vomiting it is well to wash the stomach and perhaps have half a liter of water in the stomach before withdrawing the tube.

We were able to introduce the duodenal tube in one patient, who was vomiting, and in this way were able to put liquids directly into the intestines. The tube remained in place in spite of vomiting small amounts of gastric juice and was left in the duodenum over 24 hours.

The coma patient should be placed between blankets and surrounded with hot water bottles, or electric heating pads, to warm the cold extremities and bring the subnormal temperature to normal as quickly as possible. The administration of hot drinks facilitates this very much and the patient becomes quieter.

If the pulse is weak stimulants should be resorted to. Caffeine seems to us to be the best, as it is prompt in its action. Digitalis may be of questionable value, because of its slow action in the emergency. We have used the hypodermic preparations and have felt safer because of its use.

CONCLUSIONS

Coma is a preventable accident of diabetes, and when it does occur, it is an emergency, which is as important as any surgical emergency.

The treatment of coma must be carefully planned and the plan carried out in detail.

Insulin is very valuable, but should not be relied upon to the exclusion of the other procedures.

Sufficient carbohydrate, in a readily assimilable form, must be administered to combat the acidosis.

The patient must be warmed and the body fluids restored quickly to insure success.

The heart should be supported by stimulants when necessary.

BIBLIOGRAPHY

1. Foster, N. B.: Diabetic Coma. A. M. A., 84:719, 1925.

2. Wilder, R. M.: Necropsy Findings in Diabetes. Southern Med. Jour., Birmingham. 19:241, 1926.

3. Labbe, M.: Arch. des Mal. de l'App. Digestif, Paris, 14:101, 1924.

4. Argy, W. P.: Hyperglycemia with Coma; absence of acetone in urine. Boston Med. and Surg. Jour., 193:1936, 1925.

Paddock, Brace 4.: A Fatal Case of Diabetic Coma Without Ketosis. A. M. A., 82:1856, 1924.

5. Mosenthal, H. O.: Practice of Medicine, Tice. IX, 90.

THE MECHANISM OF NORMAL INTRAOCULAR PRESSURE*
(A Preliminary Outline)

Michael Goldenburg, M. D.
CHICAGO

To present this subject clearly, it is necessary first to direct attention to some anatomic parts and to interpret briefly their apparent function.

Thus, the eyeball may be viewed as an imperfect sphere with apertures of various dimensions and directions for the transmission of nerves, vessels and body fluids. The origin and insertion of the recti and oblique muscles is such that the equator of the eyeball is always in direct apposition to the greatest diameter of this cone of muscles, and is subject to a pressure exerted by the normal tonus of these muscles, and to an alternate positive and negative pressure when they function as rotators. Likewise the function of the levator palpebrarum and the orbicularis palpebrarum in opening and closing the eyelids exerts a similar pressure.

The iris with its crypts of Fuchs and its contraction folds presents an absorptive surface for the escape of the aqueous secondary only to the canal of Schlemm. During contraction and dilatation of the iris this function is in all probability accelerated. In addition, it is probable that the motility of this small body of fluid is also influenced by this function.

The drainage angle with its meshwork leading to the canal of Schlemm leads one to the deduction that this is made up in part of all the tissues in its immediate vicinity. Salzmann makes this statement, "The major portion is probably made up of the posterior layers of the cornea and the most anterior internal fibers of the sclera, while the anterior fibers of the ciliary muscle and the root of the iris form the lesser part." It is of interest at this time to call attention to Troncoso's observations of this part with his gonioscope. He is of the opinion that what we have considered as the root of the iris, forming the postero-lateral boundary of the recess, is but the anterior surface of the ciliary body.

Of the canal of Schlemm, Salzmann states that, "It should not be termed a canal, in that it is comparatively seldom a single elongated tube but more frequently consists of two or more tubes running side by side, or over one another, in the scleral furrow. Thus the lumina of the tubes naturally must vary in the different parts of the circumference."

Relative to the scleral spur, he states, "The scleral spur or scleral roll is nothing more or less than the anterior internal part of the scleral furrow."

Of the retina we need say but little, except to call attention to the blood supply; the posterior layers receiving their nutrition from the chorio-capillaris and the anterior layers from the central retinal artery.

Of the uveal or vascular layer much may be said. The usual description found in text-books calls attention to the chorio-capillary layer in apposition to the retina, the layer of large vessels most external and the layer of medium sized vessels between.

If we could interpret this circulation from a view point other than that of an ophthalmologist we would unquestionably be impressed with its unique character and its immensity, surely out of proportion to its purely nutritional demands. Of late years some thought and study has been devoted to this subject by Magitot and others but I believe Magitot was the first to report some experimental work in this field. He suggests that the vortex veins must be viewed in the light of venous sinuses or cavernous systems, subject to dilatation and contraction under various simuli; that by this function the normal intraocular pressure is maintained, playing the role of a buffer between the pressure in the general blood circulation and that of the intraocular structures. Much may be said for and against his suggestions, but I am very much inclined to agree with Magitot that this unique circulation has other functions than that of merely carrying the blood, and that these vessels in all probability do dilate and contract under various stimuli.

Likewise is the circulation of the ciliary processes extremely unique and abundant, if its function is purely limited to that of nutrition. We find the ciliary processes, of which we have about seventy, consisting almost wholly of very fine blood vessels held together by a loose stroma and situated in the free fluid space of the posterior aqueous chamber. This entire uveal circulation is almost wholly the intraocular

*Read before the Chicago Ophthalmological Society, March 21, 1927.

manifestation of the long and short posterior ciliary system of vessels.

Of the microscopic anatomy and physiology of the fine capillaries much can be said that is of interest and of comparatively recent knowledge. Up to a few years ago the general concept of a capillary was that it consisted of a single layer of endothelial cells, held together by a cement substance which was passively distended by the arterial blood pressure. August Krogh and others who have done much work in this field inform us that capillaries have, external to this stereotyped endothelial tube, a modified muscular layer. This consists of oblong cells (Rouget cells, 1873,—Sigmund Mayer, 1902) with many fine prolongations which surround this tube, and which are subject to contraction and dilatation under various stimuli. (See Figure 1.) This investigator has reported some very unique and interesting observations on the conduct of these fine vessels in the lower forms of life, which have to a large extent been confirmed by others and many of the reported phenomena have been observed in the human being.

For example, he has demonstrated experimentally, to use his own words, "That the capillaries are not merely passively distended by arterial blood pressure, but possess a tonus of their own and may show contractions and relaxations independently of the corresponding reactions in the arteries; that the muscular coat of capillaries possesses like smooth muscles generally, a definite tonus or posture, subject in the organism to nervous, hormonal and other influences." (See Figure 2.)

Peterson and Willis (1926) make the following statement: "We have heretofore been accustomed to think of the capillary system and its functional control in terms of the vasomotor nervous mechanism and have come to confuse the reaction of the musculature of the arteriole with the presumptive reaction of the capillary wall. Indeed, an independent dilatation and contraction of the capillary has until recently been regarded as improbable, or merely of academic interest."

Again, these same workers make the statement relative to the muscular coat of capillaries that may be only of academic interest, but to the hypothesis here presented it is distinctly interesting if not pertinent. They say, "This muscular mechanism has been superimposed on the more primitive system and its nervous control, too, is a later addition to the mechanism of regulation."

Krogh further states that normally the capillaries are not all dilated or contracted at one and the same time, but a goodly portion may be dilated, while a like portion are contracted. (Thus they would seem to function not wholly unlike the rhythmic systole and diastole of the cardiac cycle.)

As a result of these observations he is inclined to think that the capillaries are probably much more numerous than the accepted belief. He has shown that the capillaries may be so contracted as to inhibit the passage of even a single blood

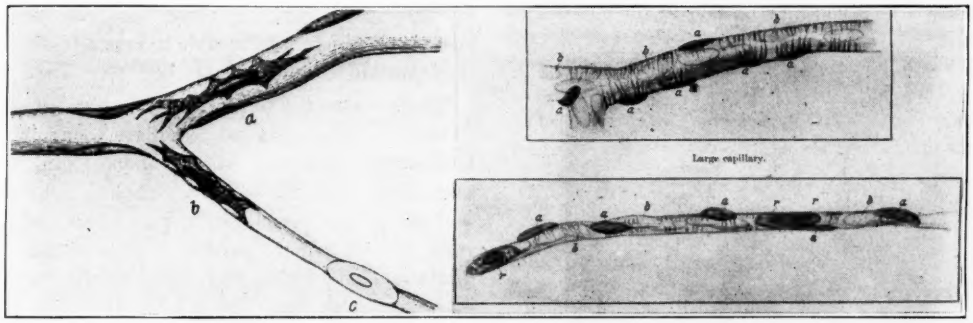


Fig. 1

Fig. 1. Two Rouget cells (a and b) as seen on capillaries in living newt larvæ. B is contracting, e is a red corpuscle.
x 500. After Vimtrup.

Fig. 2.

Fig. 2. Small, somewhat contracted capillary. a, muscle cells; b, nuclei of endothelial cells; r, red corpuscles. From nictitating membrane of frog. Supravital staining with methlene blue.
x 500. After Vimtrup.

cell, or may dilate sufficiently to permit many cells to pass a given point at one time. Thus injected specimens may only demonstrate the capillaries that happen to be dilated at the time of injection. That permeability of the capillary wall is dependent wholly on the state of dilatation of the capillary, which permits fluids and even cellular elements to pass out through the so-called intercellular spaces.

Sufficient work in this field has been reported since Krogh's early publications by Müller, Stricker, Hooker, Peterson, Ebbecke and others, so that we are compelled to view this concept of capillary physiology with more than mere academic interest. In fact, it is very probable that many obscure phenomena may find their explanation in this field in the future. (See Figure 3.) Much may be said of the conduct of

Fig. 3.
Fig. 3. Capillaries from frog's web. Border lines of endothelial cells silvered. Black pigment cells. x 300.

these vessels under various stimuli that will produce an increased or decreased permeability, e. g., the endocrine secretions, various drugs, increased or diminished hydrogen ion concentration, potassium and calcium balance, etc. The antagonistic observations that have been reported by Peterson as the result of simultaneous stimulation of the endothelium and the external muscular coat, are all vastly interesting.

The Osmotic Theory. This hypothesis is based upon the diffusibility of fluids through semi-permeable membraneous structures as seen throughout the entire plant and animal world.

Diffusibility of fluids is dependent on several factors, such as the porosity of the membrane through which the fluids must pass, the size and nature of the molecule of the fluid to be diffused, and the osmotic pressure to which the fluids are subjected. The diffusibility of fluids varies in different parts of the body, according to their different constituent elements, the conditions under which they function and whether or not they are at rest or in active motion. Krogh has demonsrated that in a resting muscle not all the capillaries are open at one and the same time; that is to say, some of them are contracted so that a much smaller surface area is available for diffusion, whereas in the active muscle the opposite is true.

As to the diffusibility of different substances, e. g., crystalloids and colloids, space will not permit of extensive citations, but in general one can say that in the capillary blood vessel we have a membrane which is permeable to crystalloids and impermeable to colloids.

Krogh makes the following general statement: "That no dilatation of capillaries involving mechanical stretching of the endothelium can take place without being accompanied by an increase in the permeability, an increase which runs, on the whole, parallel to the degree of dilatation, and which may allow all the normal plasma colloids to filter off rapidly when the capillaries are strongly dilated. Artificial solutions can produce an extreme dilatation of the capillaries."

The Mechanism Involved. To apply and correlate the factors enumerated for an explanation of the maintenance of normal intraocular pressure, the source, flow and escape of the aqueous humor must first be considered separately, and later as a continuous cycle of phenomena.

Source of the Aqueous Humor. It is conceded by most observers that this originates from the ciliary body; whether it is a secretion from such glands said to exist in this body or by a process of osmosis, dialysis or diffusion is still probably debatable. Most observers are of the opinion that this humor is the result of the latter process from the vessels of the ciliary processes. Just how this takes place, the factors responsible for preventing elements of the blood stream finding their way into the aqueous and the rate at which this fluid is produced, has been the subject of much discussion. That the elements of which

the aqueous is composed are also found in the blood is conceded. That the epithelium covering the ciliary processes possesses selective properties, thus preventing the passage of substances abnormal to the aqueous is likewise conceded by most observers. There is much experimental and clinical proof to maintain this deduction.

Those advocating the osmotic theory contend that the differences between the systemic blood pressure and the intraocular pressure make this phenomena possible, citing various figures indicating the pressure existing in the different parts. Those maintaining the secretary theory contend that the elements necessary for these phenomena do not exist and that secretary glands must exist in the pars plana.

However, the newer thought on the anatomy and physiology of the capillaries would appear to cast much light on the osmotic theory that is distinctly favorable to this hypothesis. Recall

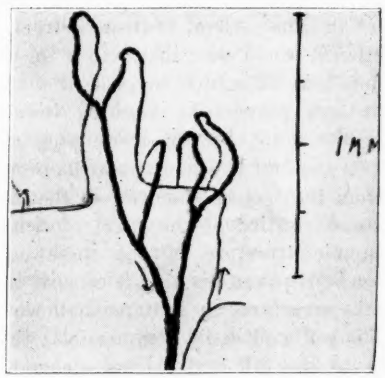


Fig. 4.

Fig. 4. Arterioles, capillaries and venules at the base of the human nail. After E. B. Carrier.

A picture similar to the above is seen at the limbus when examined with a slit lamp microscope.

again what was said of the ability of the capillaries to dilate and contract irrespective of a like conduct in the arteriole, independent of its nerve supply, and the further observation, that these capillaries alternately contract and dilate, not all of them being either contracted or dilated at one time under normal conditions; that a lesser number are dilated in a resting muscle and inversely in an active muscle; that the permeability of the capillary wall is almost wholly dependent on the dilation existing. (See Figure 4.)

The ciliary processes, consisting almost wholly of fine capillaries and in apposition and part of the actively functioning muscle of accommodation, would appear to present all the elements necessary for filtration by osmosis. Thus during dilatation of the capillaries, the fluid elements of the blood stream pass out through the so-called intercellular spaces by a process of osmosis through the epithelium and into the aqueous chambers. By this rhythmic, alternating contraction and dilatation of these capillaries is osmosis favored, and the aqueous humor produced. The rate of production of this fluid is dependent on the number of capillaries in the state of dilatation, a greater number being dilated in an actively functioning part than in a resting part. Thus during sleep aqueous production, is decreased, but escape is also lessened. The influence of this capillary function on the intraocular pressure then becomes apparent, but only in part, that is, the filling of the chambers with aqueous humor.

The escape of the aqueous humor may be explained largely on the basis of the laws governing hydrodynamics and osmosis. The eyeball being viewed as an imperfect sphere with apertures of various dimensions, should be expected to respond as a sphere containing fluids. Thus a pressure applied to such a sphere would primarily be transmitted equally in all directions; the only friction to be considered would be the partitions existing. The apertures of greatest diameter would naturally permit a freer escape of fluid than the smaller ones. Thus, the canal of Schlemm may be said to be the principal avenue of escape and the iris surface with the crypts and possibly the posterior pole of the eyeball as the lesser avenues. The escape of the aqueous from the posterior into the anterior chamber through the pupil is naturally granted.

This pressure on the eyeball is brought about in several ways. The origin and insertion of the extrinsic muscles is such that the equator of the eyeball is constantly in apposition to these more or less taut muscles. Thus, when the eyeball is rotated in any direction a series of muscles are innervated and as a result produce pressure on the eyeball; when the direction is changed these muscles are relaxed and another series produces a similar pressure. In that way do we have a continuous alternating positive and negative pressure applied to the eyeball during the waking

hours. In addition the closing and opening of the eyelids exerts a like alternating pressure that is of some moment. In this manner is the continuous kneading and massage of the eyeball brought about and the intraocular pressure resulting from aqueous production is neutralized.

It is a well known clinical fact that if the intraocular pressure of an eye is first recorded, and the eye then subjected to a continuous digital palpation for a few minutes, and the pressure again recorded, it will be found distinctly lower. It is also well known that if the finger is applied to the eyeball, the intraocular pressure will be elevated; if the intensity of this pressure is increased the intraocular pressure can be so elevated as to produce arterial pulsation and ischemia of the retinal vessels.

Lederer of Würzburg has demonstrated that by contraction of the recti and oblique muscles the intraocular pressure is elevated.

The squaring of a degenerated eyeball as a result of the action of these extrinsic muscles is likewise a common clinical observation.

In addition to these external forces we must also give some consideration to the function of the iris and ciliary muscle in this cycle of events. The ciliary muscle with its radiating and circular fibers, situated in the limited space external to the ciliary processes, must have some influence on these vessels. During the act of accommodation this muscle is doing real physical work. by its contraction and relaxation, the fine vessels of the ciliary processes are subjected to a pressure, the result of which must be of some moment in this phenomenon.

Of the iris one may say fairly definitely that the crypts of Fuchs possess absorptive properties; of the remaining anterior surface of the iris it is probable that it also possesses like properties in a measure. The influence of contraction and dilatation of this organ on the absorptive function would seem to be considerable.

As to the influence of the function of contraction and dilatation of the iris on the motility of the aqueous humor opinions differ. Some contend that this motility is due to the differences in pressure existing in the different chambers. Slitlamp workers attribute this motility to thermic factors. It would seem reasonable to suppose that such a small body of water would be markedly influenced by the continuous whipping of this fluid during the alternate contraction and dilatation of the iris. This function combined with the external pressure and that of the act of accommodation, would at least be a reasonable explanation of the forces involved in propelling the aqueous from its source through the pupil and into the anterior chamber.

The transport of the aqueous from the anterior chamber through the meshwork and into the canal of Schlemm, must next be considered. The most popular explanation prevalent is that of the pump action theory of Thompson. To accept this theory we would be compelled to agree that the scleral spur moves back and forth as if upon a hinge.

If we will recall what Salzmann says of this canal "That it should not be termed a canal, in that it is comparatively seldom a single elongated tube, but more frequently consists of two or more tubes running side by side or over one another in the scleral furrow"—from this description it would seem that even if the scleral spur moved, as Thompson suggests, it would defeat its own purpose by blocking instead of opening the canal, by the overlapping of one spur upon another. It would appear more reasonable, from the factors enumerated, that is, the nature and position of the canal of Schlemm, the anatomic structure of the meshwork, of which at best we can say that it consists in part of all the structures in its immediate vicinity; that it is soft and easily compressible; that according to the different figures elaborated by different authorities, the quantity of aqueous humor filtering through is estimated at between 6 and 10 cmm. per minute; that according to these figures the filtering capacity of the canal would be about ten times the filtering capacity of the most permeable collodion membrane. Therefore it would be safe to assume that this meshwork can act as a permeable membrane and that the escape of the aqueous humor into the canal of Schlemm is brought about by a process of osmosis; the osmotic cycle being maintained by the differences in the fluids on both sides of this membrane or meshwork, and the pressure the fluids are subjected to, both from within and without, as the result of the alternating positive and negative pressure exerted by the striped musculature.

The Influence of the Nervous System. From

what has preceded, it would appear that the factors pertinent to this outline were largely under control of the motor, instead of the sympathetic nervous system. The dilators of the iris and the filaments to the capillaries are probably of sympathetic origin. But we know that capillaries can dilate and contract independently of their nerve supply or the state existing in the arteriole.

From reports in the literature on the reaction of the intraocular pressure to various experiments involving the sympathetic ganglia or nerves, a definite deduction would seem very difficult—indeed almost impossible. However, it would appear from an analysis of these reports that it must possess some influence; whether it be of a major or minor character is probably debatable. I am inclined to think that the role it plays is of minor import, that is to say, it probably acts as a refined regulator within certain restricted limits. For example, I am inclined to think that it aids in maintaining that fine balance so necessary to the osmotic cycle. I am further inclined to think that this fine regulating mechanism is probably a later phylogenetic development as suggested by Petersen. An analogy that appears appropriate to this mechanism is that of the balance wheel and hair spring in a fine watch. When all the parts of that watch are functioning normally, this balance wheel and hair spring act as the regulator and control the accuracy of that timepiece. But when that watch becames dirty and oily, this regulator can no longer function accurately. When that watch is cleaned, oiled and again functioning, this balance wheel and hair spring can then again act as the regulator of the mechanism.

RESUME

The blood concerned in this cycle of phenomena is brought to the capillaries by the long and short posterior ciliary vessels. During the alternate dilatation and contraction of the capillaries the fluid elements of the blood stream pass out through the so-called intercellular spaces by a process of osmosis through the epithelium covering the ciliary processes and into the aqueous chamber. By the dilatation and contraction of the iris and ciliary muscle and the pressure of the external musculature the aqueous is propelled through the pupil into the anterior chamber. By this same process iris absorption is accelerated and by the alternate positive and negative pressure exerted by the external musculature is aqueous escape into the canal of Schlemm brought about by osmosis, the meshwork of the drainage angle functioning as a permeable membrane. The nerve supply of greatest import to this mechanism is that of the motor system. The sympathetic system acting in a minor capacity as a refined regulator, functioning within restricted limits.

That this perpetual cycle of phenomena is governed and regulated by the known and accepted teaching governing the laws of osmosis and hydrodynamics.

104 S. Michigan Ave.

COORDINATING RADIOLOGY WITH OTHER SPECIALTIES*

WALTER G. BAIN, M. D.

SPRINGFIELD, ILL.

Conclusions drawn in this paper are based upon data obtained by the study of 84 obscure cases, which were examined at St. John's Hospital, Springfield, Illinois, by a group of physicians during 1925, 1926, and 1927. Plan of examination was similarly carried out in each case. Plan is known in our institution as the "Springfield Diagnostic Plan." This plan was devised to meet the demand for group study of cases, and briefly is as follows:

A case under consideration is sent into the hospital, where he or she remains during the period of examination. Upon admittance to the hospital, the physician referring the case for exwhom he wishes to have examine the patient. His selection of examiners is based on his knowledge of these examiners' special line of work. He includes in the group for the examination

1. An historian.
2. An internist.
3. A surgeon.
4. A pathologist and radiographer.

to which group is added any other specialist whose presence in the particular case is deemed necessary to efficiently effect the complete study of the case. Addition of specialists is made as

*Read before Section on Radiology, Illinois State Medical Society, Moline, May 31, 1927.

the examination proceeds at the suggestion of any one of the examiners who sees the need for additional specialists' reports.

Each examiner submits a written, detailed report of his examination with a summary of pathological findings as he determines them. After the examinations are completed, a conference is held, at which time a secretary is elected from the examining group, who records the concensus of opinions and discussion of the case. After the conference, the secretary's report and the original reports are turned over to a stenographer, who makes a complete copy of all reports. This copy contains the following reports:

1. History, prepared by an historian.
2. Clinical findings by clinical examiners.
3. Complete laboratory records by pathologist and radiologist.
4. Summary of findings, with complete diagnosis and recommendations as recorded by case secretary.

A copy of this complete report is furnished each of the physicians who have taken part in the examination, and additional copies are filed for permanent record in the archive envelop of the patient at the hospital.

From 84 such reports I would like to call attention to statistics under the following classifications:

1. The total of pathological diagnoses arrived at in the several conferences.
2. The number of pathological diagnoses obtained by x-ray methods only.
3. The number of pathological diagnoses obtained by clinical methods and corroborated by x-ray methods.
4. The number of pathological diagnoses obtained by clinical methods only.
5. The number of pathological diagnoses obtained by laboratory methods only.
6. The number of pathological diagnoses obtained by clinical methods and corroborated by laboratory methods.

In view of the fact that the examinations of these cases were carried out only by expert examiners and specialists in their own lines, I believe that conclusions to be drawn will give an excellent view of the advantage of correlating the radiographic specialty with that of other specialties.

ANALYSIS OF PATHOLOGICAL FINDINGS WITH REFERENCE TO METHODS OF OBTAINING SAME

NOMENCLATURE REDUCED TO TERMINOLOGY OF INTERNATIONAL LIST OF CAUSES OF DEATH

Pathological Conditions Recorded	No. of Cases Studied	Determined by X-Ray Alone	Det. by Clinical Corroborated by X-Ray	Det. by Clinical Alone	Det. by Laboratory Alone	Det. by Clinical Corroborated by Laboratory
I. VASCULAR SYSTEM:						
*46 Other Tumors	1	1	..	..	..	..
53 Leukemia	1	..	..	..	..	1
54 Anemia	11	..	..	..	9	2
78 Acute Edocarditis	16	1	7	8	..	..
79 Organic Disease of Heart	11	1	1	4	2	3
81 Dis. of Arteries	12	1	1	10	..	..
84 Diseases of Lymphatic System	1	..	..	1	..	..
85 Hemorrhage	1	..	..	1	..	..
88 Dis. of Thyroid Body.	8	..	1	..	4	3
50 Diabetes	1	..	..	..	1	..
37 Syphilis	7	..	1	1	3	2
Totals for Vascular System	70	4	11	25	19	11
II. DIGESTIVE SYSTEM:						
*40 Cancer & Malignant Tumors, Stomach & Liver	1	..	..	1	..	..
50 Diabetes	1	..	..	1	..	..
55 General Diseases	4	2	..	2	..	..
83 Diseases of Veins	7	..	..	7	..	..
99 Diseases of Mouth & annexa	48	37	6	..	5	..
102 Ulcer of Stomach	1	..	1	..	..	..
103 Dis. of Stomach (not cancer)	13	5	1	..	7	..
105 Diarrhea (over 2 years)	4	..	1	3	..	..
107 Intestinal Parasites	5	..	..	..	5	..
108 Appendicitis	28	11	12	3	2	..
110 Dis. of Intestines	24	2	..	22	..	..
114 Biliary Calculi	1	..	1	..	..	..
113 Cirrhosis, liver	3	..	..	3	..	..
115 Liver, diseases (other).	26	16	10	..	..	..
Totals for Digestive System	166	73	32	42	19	0
III. NERVOUS SYSTEM:						
*56 Alcoholism	1	..	..	1	..	..
63 Diseases of Spinal cord	1	..	..	1	..	..
66 Paralysis without Specific cause	1	..	..	1	..	..
68 Forms of Mental Alienation	2	..	..	2	..	..
69 Epilepsy	1	..	..	1	..	..
73 Neuralgia & Neuritis	4	..	..	4	..	..
74 Diseases of Nervous System	5	..	1	4	..	..
88 Diseases of Thyroid Body	1	..	..	1	..	..
147 Diseases of Organs of Locomotion	1	..	..	1	..	..
149 Diseases of Joints, T. B. & Rheumatism Excepted	9	..	..	9	..	..
154 Senility	1	..	..	1	..	..
130 Diseases of Uterus	1	..	..	1	..	..
Totals for Nervous System	28	0	1	27	0	0

IV. RESPIRATORY SYSTEM:						
*28 Tuberculosis of Lungs.	12	2	6	3	0	1
86 Diseases of Nasal fossae	1	0	0	1	0	0
87 Diseases of larynx.....	1	..	..	1	..	..
90 Chronic Bronchitis	1	1	..	..	..	..
97 Pulmonary Emphysema.	1	..	..	1	..	..
100 Diseases of Pharynx..	7	..	..	7	..	..
146 Diseases of bones, T. B. Excepted	5	4	1	..	..	..
Totals for Respiratory System	28	7	7	13	0	1
V. GENITO-URINARY SYSTEM:						
*120 Bright's Disease	7	..	..	1	5	1
122 Diseases of Kidney & Annexa	1	1	..	..	..	..
123 Calculi, Urinary Passages	2	1	1	..	..	..
119 Acute Nephritis	2	..	1	1	..	..
126 Diseases of Prostate...	3	..	..	3	..	..
127 Nonvenereal Diseases Male Gen. Organs...	2	..	..	2	..	..
130 Diseases of Uterus.....	14	..	..	13	..	1
132 Salpingitis & Dis. female gen. org.....	3	..	..	2	..	1
Totals for Genito-Urinary System ..	34	2	2	22	5	3
VI. ORGANS OF SPECIAL SENSE:						
*75 Diseases of eyes and Annexa	4	..	1	2	..	..
VII. SKELETON & LIMBS:						
*32 Potts' Disease	2	2	..	..	..	..
109 Hernia, Intestinal Obstruction	4	..	..	4	..	..
146 Dis. of Bones T. B. Excepted	2	2	..	..	..	..
147 Dis. of Joints T. B. & Rheum. Excepted....	4	..	..	4	..	..
149 Dis. of Organs of Locomotion	1	..	..	1	..	..
185 Fractures	2	..	2	..	..	..
186 External Violence	1	..	..	1	..	..
Totals for Skeleton & Limbs	16	4	2	10	0	0
VIII. SKIN:						
*145 Diseases of skin.....	2	0	0	2	0	0
GRAND TOTALS..	347	90	56	143	43	15

The number of different pathological conditions recorded in the eighty-four cases was 106, which when reduced to the nomenclature of the International List of the Causes of Death, was sixty-one.

The total number of pathological conditions for all 84 cases was 347. The smallest number of pathological conditions of any case was one, which occurred in five cases. The largest total of pathological conditions in any case was nine, which occurred in one case. There was an average, therefore, of four pathological findings in each case.

When grouped, according to embryological systems of the body, there was found 70 in the vascular system; 166 in the digestive system; 28 in the nervous system; 28 in the respiratory system; 34 in the genito-urinary system; 3 under the organs of special sense; 16 in the division of skeleton and limbs; and 2 in the division of the skin.

With reference to the findings obtained by the different methods of examination, x-ray alone showed 90; Clinical methods corroborated by the x-ray showed 56; Clinical methods alone, 143; Laboratory alone, 43; Clinical methods corroborated by laboratory, 15.

In conclusion, this plan of carrying out a complete examination of a patient gives the patient the advantage of an opinion from a number of specialists at a minimum expense to the patient and a minimum inconvenience to the consultants. The report rendered to the patient has greater value because the findings have been corroborated by all the consultants in conference. The data establishes a definite position for the examination of patients by clinical methods, by x-ray methods, and by laboratory methods. This is indicated by the number of pathological conditions found by clinical methods, 214; by x-ray methods, 146; by laboratory methods, 58; which if expressed on a percentage basis gives the following values: clinical methods, 51 per cent.; x-ray methods, 35 per cent.; laboratory methods, 14 per cent.

DISCUSSION

Dr. P. B. Goodwin, Peoria, Ill.: This paper, as Dr. Bain has given it here, has shown he has worked it out pretty thoroughly in these 347 cases. One point he has brought out is the value of the cooperation we get between our specialty and the other branches of medicine. He says there would have been thirty-five cases which would have been overlooked had it not been for the x-ray. That certainly should prove to the practitioners the value of our work in their diagnoses.

I would like to ask two or three questions of Dr. Bain, which will probably open this up a little bit more to us. I would like to ask him how the men are compensated who come into this group, these different branches of medicine, and if they are compensated is not the expense to the patient rather great?

Another point, he speaks about the historian. I was wondering if that were done by the intern, or whether one physician took the history of all these cases.

And I would like to ask another question. Do you find any antagonism among men who are not called into these conferences, possibly having clinics or doing most of their own work? And whether these cases which you run through this diagnostic plan are obscure cases or whether they routine, as they occur?

I think Dr. Bain should be given credit for the work

*No. indicates classification number, according to "Manual of International List of Causes of Death."

he has done on this, and it is very interesting to me. (Applause.)

Dr. Walter G. Bain, Springfield, Illinois:

As regards the examiners, none of the work was done by interns. The examinations were made by men who had been in practice at least ten years, and who were considered very competent.

Of course, not the same group of men examined each of the cases. Any man practicing in Springfield, or a member of the Sangamon County Medical Society, who desired to have a case examined in this way, simply sent his patient to the hospital and designated the men he wished to have make the examinations. The historian was designated in each case by the physician who sent in the case. As I recollect, only three different men took the histories on these cases, all of whom were recognized by their associates as being competent physicians. The same held true of the other examiners. There were, in all, I think, twenty men who took part in these examinations.

I want to make this explanation. There were 347 findings, only 84 cases, but 347 pathological observations made. Every case paid a fee of not less than fifty dollars, and in some cases more.

The method of compensating the doctors has been this: Bill including hospital fees, plus allowance for physicians, is paid by the patient to the hospital. Each physician who serves in the case as an examiner is paid five dollars for his services in that case. Since he makes this examination in his routine work as he goes through the hospital in the morning, it is not any great trouble to him. He is notified by the hospital that such-and-such a case is in the hospital for his examination. He makes his examination and writes his report in the routine of his morning hospital visitations.

After the data are all in, luncheon is served at the hospital and the physicians confer on the case at that time. This has been found to be the most convenient time to get them together for conferences.

The 1918 edition of the "Manual of International List of Causes of Death" gives 189 causes of death. Inasmuch as our list included almost one-third of this number, we feel that we had a representative group of diseases, which were distributed fairly well throughout the different systems of the body.

THE WOMAN'S AUXILIARY OF THE ILLINOIS STATE MEDICAL SOCIETY

MRS. G. HENRY MUNDT, PRESIDENT

CHICAGO

At the last meeting of the Illinois State Medical Society, which was held in Moline, Illinois, the House of Delegates passed a resolution approving a Woman's Auxiliary to the Illinois State Medical Society. A group of ladies was called together and a temporary organization formed with the following elected as officers: Mrs. G. Henry Mundt, President; Mrs. William D. Chapman, Vice-President; Mrs. C. C. Ellis, Second Vice-President; Dr. Edith B. Lowry, Third Vice-President; Dr. Hada Carlson, Treasurer; Mrs. J. O. Cletcher, Recording Secretary; Mrs. Jas. H. Hutton, Corresponding Secretary.

For some time there has been a feeling among some of the leaders of the Illinois State Medical Society that a Woman's Auxiliary would be a very fine thing. On the other hand, some have felt that it might be treading upon very dangerous ground, fearing that a Woman's Auxiliary might go off at a tangent and combat some of the ideas that have been paramount in the society for many years.

I realize that this could easily be done, so the point must be and is being stressed that the Auxiliary must be subservient to the County or State Medical Society and must only act at the suggestion of or with the approval of these societies. Before taking up any piece of work the state president should confer with the officers of the State Medical Society or the county chairman with the county officers. The National Auxiliary aims to suggest but does not expect to dictate.

We are aware that some states are in advance of others and what might be suggested for one state could not be suggested for another. Some states are ahead of others in trying out measures and have proved to their own satisfaction whether they are right or wrong. We appreciate that the Illinois State Medical Society has been in the forefront for its advocacy of measures which have subsequently proven to be of great service and likewise it has opposed many measures which were advocated by other organizations and later proved to be wrong. Among these I might mention the Harrison Narcotic Act, the Sheppard-Towner Act, and State Medicine.

Undoubtedly it is this cautiousness which has kept a Woman's Auxiliary to the Illinois State Medical Society from being organized until this time. There are twenty-seven states organized and operating successfully. The first auxiliary was organized in Texas in 1917. The National Auxiliary came into existence in 1922. The State of New York is now being organized.

I believe that we doctors' wives organized as an Auxiliary can be of real service to the medical profession, acting as a medium between the pro-

fession and the laity, establishing a better understanding and closer relationship.

Medicine has never taken any definite stand in its own behalf, but I believe it is beginning to appreciate that it should and must. The Woman's Auxiliary gives us a real opportunity to serve the profession and incidentally our own husbands in this very thing.

The Auxiliary will expect to appreciate the viewpoint of organized medicine and assist in conveying this to the public. Women's organizations can do much toward shaping public sentiment and changing the attitude of the public on different health matters. Certain legislative matters could be espoused by a Woman's Auxiliary and great effect could be had upon legislators. We all know the pressure that can be brought to bear upon legislators by women's organizations.

Some women will say that they have no time for another organization, but to those I can say that much of the work can be done through the clubs to which they already belong. We can see that speakers from the Speakers' Bureau conducted by the Educational Committee of the Illinois State Medical Society are brought before our clubs and the viewpoints of organized medicine presented in this way. The bureau is doing a wonderful piece of work and we can assist greatly in this. It might be well if some of us doctors' wives were enlightened a little more as to some of the health problems of today by having these same speakers come to our auxiliary meetings to talk to us. We can see that our club bulletins do not allow the advertisements of drugless healers, quacks, etc. In one state the bulletin of the Federated Woman's Clubs was filled with such advertisements until cleared of such by the Woman's Auxiliary. We can see that the office of chairman of public health is filled by a physician's wife and that it is active when need be. This is sometimes filled by a Christian Scientist.

It is one of the aims of the auxiliary to send out readable information regarding bills pertaining to medicine which are to come before the legislature. I am sure that each member will feel it is one of her duties to read whatever the auxiliary sends to her, while friend husband, unless vitally interested in medical politics, is sometimes too busy and sometimes too negligent to read literature that is sent to him from the society. Women have more time to take up some of these matters of importance in which the doctor is interested but for which he feels he cannot afford to spend the time.

I feel that we wives owe an allegiance to the one who makes it possible for us to have time for other club activities, but if the doctors themselves cannot see any reason for a Woman's Auxiliary their wives cannot be expected to, for they are too busy with other club activities to bother about things concerning their husband's profession. However, I am sure that they would be glad to be of assistance if they knew how to be, so the doctors must see the need for it before the wives will become interested. I feel certain that the only reason why any doctor is not already interested in the Auxiliary is because he has not taken the time to consider the possibilities of such an organization.

There is the social side, too, which is of great value. I am told that in some places there is a happy relationship between physicians' families that has never existed before, due to the work of the Auxiliary. It is customary for the Auxiliary to take care of the entertainment of the ladies at the National, State and County meetings.

The National Auxiliary holds its meetings concurrent with the annual meeting of the American Medical Association. There is a luncheon held at that time which is open to all members. The State Auxiliary likewise has its meeting concurrent with the meeting of the State Medical Society. It is optional with the counties as to the time of their meetings, though in some places it has brought out a greater attendance of members of the County Medical Society to have their meetings held at the same time. Dinners sometimes are served or lunches are brought and these are enjoyed together while the meetings are held separately. Some Auxiliaries have afternoon musicals or card parties. However, there should be a meeting held once each month from October to June with reports given and recommendations made at that time.

The dues will be very small. Anyone desiring to become a member where there is no County Auxiliary may become a member-at-large by paying her dues to the State Auxiliary. We hope to have very few such members for we are desirous of having every county organized. We

want the County officers to come to the State meeting next spring and assist in forming a permanent organization.

Now that the Illinois State Medical Society has seen fit to have a Woman's Auxiliary I think that we should put forth every effort to make it one of the strongest auxiliaries, for the Illinois State Medical Society with its standing as one of the leading State Societies cannot afford to be a laggard in this matter. However, we shall not try to force the Auxiliary where it is not wanted. We possibly cannot do big things to start with, but let us be organized and ready to respond to any call from the profession.

I feel that I have had very good response from the counties so far, but may we not have them all organized?

6930 South Shore Drive.

ACUTE AND CHRONIC APPENDICITIS THE VALUE OF X-RAY FOR DIAGNOSIS OF CHRONIC APPENDICITIS*

BENJAMIN CHAPMAN, M. D.
CHICAGO

The literature about appendicitis is very copious. According to Dr. George Edelbolm 376 articles were written about appendicitis until 1899. Since that time the literature on the subject increased.

From 1905 to 1923 the Mayo Clinic produced twenty articles about the same subject in addition to those which are printed in the Journal A. M. A., and in the Annals of Surgery. It looks like the question about appendicitis is exhausted and clear to every man of our profession. However, there are obscure cases which are difficult to diagnose. Those cases are the chronic type of appendicitis which is the subject of my paper. I will make a brief review of the entire subject and then analyze the obscure cases where the x-ray examination is of great importance for diagnosis.

CLASSIFICATION

MacCarty of the Mayo Clinic in a paper read before the convention of the American Medical Association in June, 1910, makes the following classification:

1. Clinical
2. Surgical
3. Pathological

*Read before the Russian Medical Society, April, 1927.

1. *Clinical.* The medical men divide appendicitis into acute, subacute and chronic. The disease is called perityphlitis, when after repeated attacks a local or circumscribed peritonitis exists.

This classification is based on the clinical symptoms as pain, which is localized in typical cases in McBurney's point, and in atypical cases in the epigastrium, inguinal region and even in the left hypochondrium. The other symptoms are —vomiting and constipation, rise in temperature, tumor mass or infiltration in appendiceal region and leucocytosis.

2. *Surgical.* The surgeons regard the appendicitis from a different standpoint. They raise the question, 'is the case operable or inoperable; is the appendix suppurative or not (appendiceal abscess)? In addition to the two surgical questions they accept the pathological classification.

The only difference between the surgeons and pathologists on this subject is, that the former are taking in consideration the position of the appendix in the abdomen (retrocecal appendix) and the findings during operation, and the pathologists are basing their opinion on the macroscopic and microscopic pathological findings (catarrhal, suppurative and gangrenous appendicitis).

3. *The Pathological Classification is:* Appendicitis catarrhalis acuta (infiltration of the mucosa).

Appendicitis catarrhalis chronica—formation of adhesions between the appendix and other organs in the abdomen as the gall bladder, fundus ventriculi, colon, omentum, uterus and right ovary. The appendix was found also in the hernial sac of inguinal and femoral hernias.

Appendicitis purulenta necrotica—a circumscribed suppurative process of the mucosa and submucosa. This form is characterized by formation of local abscesses within the mucosa and muscularis of the appendix and formation of a peritoneal wall around the organ to stop the spread of the infection through the rest of the abdomen. This is a benign form and recovery usually follows after operation.

Perityphlitis acuta — a suppurative and gangrenous appendicitis complicated with general peritonitis. This is a most serious form of appendicitis and occurs in ulcerative form of appendicitis after perforation and a spread of septic

material through the peritoneum of the whole abdomen (septic peritonitis and death are the final result).

Obliterative form is a chronic form, with obliteration of the lumen of the appendix with fibrous tissue, fecal masses and pin-worms or oxyuris vermicularis in children from three to twelve years of age (75 per cent).

PATHOGENESIS

There are different theories about the pathogenesis of appendicitis.

Theory of focal infection. Dr. Rosenow thinks that focal infection—infected tonsils and infected teeth (pyorrhea), cholecystitis and diseases of the female organs (tubal and ovarian trouble) are the main causes of appendicitis.

Fig. 1. Spasticity of the Colon in Chronic Appendicitis (S. E.). (Cushway's X-Ray Laboratory.)

He is of the opinion that the infection spreads through the lymphatic system to the appendiceal region. Dr. Rosenow, experimenting on rabbits, found that when the infected material is spread from the tonsils into the rabbit's blood, the animal in sixty per cent of the cases developed appendicitis. I can confirm Dr. Rosenow's theory in my own two cases (Miss E. L. and boy K) who developed appendicitis after an acute follicular tonsillitis.

In other experiments, Rosenow injected the pathogenic microorganism from a removed appendix into the rabbit's blood and the animal gave all manifestations of a cholecystitis (49 per cent). These experiments made by Dr. Rosenow and the observations made by Dr. MacCarty on his large clinical material at the Mayo Clinic brings us to the conclusion, that in a great many cases of cholecystitis we will find a previous history of appendicitis.

Infectious Theory. Some other observers think that appendicitis is caused by colon bacillus and the streptococcus viridans. Rosenow isolated from the appendices removed during operation, microorganisms which on the culture media (blood agar) gave a growth of colonies, resembling streptococcus viridans. He injected the obtained pure cultures of streptococci into the vein of a rabbit and the animal gave the symptoms of appendicitis. The infectious theory is confirmed also by the fact, that the disease may appear in form of an epidemic when we consume infected food material.

From February until March 5, 1915, an epidemic of appendicitis broke out in the Culver Military School, in the State of Indiana, when eight cases of appendicitis were found among the cadets. An investigation was ordered by the Commandant and it was discovered that the cadets used unpasteurized milk. The milk was examined and staphylococcus aureus was found in the milk.

Predisposing Cause. Colonic stasis is the most common predisposing factor which causes putrefaction in the large intestine and the penetration of the colon bacillus into the appendix. The other predisposing factors are—the anatomical anomalies of the appendix and trauma in the right hypochondriac region, caused to prize fighters, soldiers during military exercise and workben by lifting heavy objects during their work (for example truck drivers, and dock workers), and in women the attack may be precipitated at the menstrual period.

Laboratory. The leucocyte count and the differential blood count are very important in determining the gravity of the disease in appendicitis cases. The leucocyte count is the

index of the defensive powers which the sick human body has to combat the infection.

Pathological leucocytosis is a condition in which the amount of leucocytes in 1 cmm of the blood is higher than 10,000 and the polymorphonuclear neutrophilic leucocytes is 75 per cent, or more. Sondern, Louis Vilson and Deaver published their observations on this subject and made the following conclusions:

Polynuclear percentage is the index of the

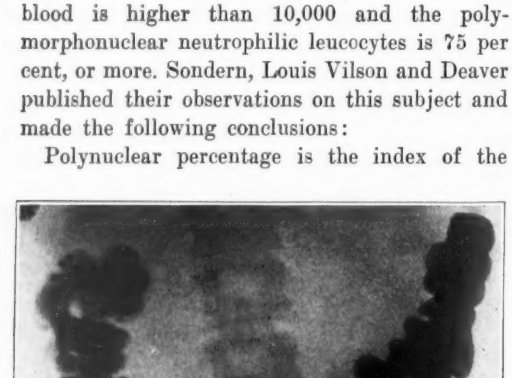


Fig. 2. Visible Appendix in Chronic Appendicitis (E. C.). (Cushway's X.-Ray Laboratory.)

gravity of the disease. The height of the leucocytosis shows the strength of the body to resist infection. If the polynuclear percentage is high and the leucocytosis is comparatively low, the prognosis in such cases is bad. (The infection is liable to overcome the body resistance). On the contrary, if the leucocytosis is high and the polynuclear percentage is low, it means a mild case in which you can expect a quick recovery.

L. Vilson in describing his observations mentions a case when a sick woman, thirty-five years of age, entered the hospital with a diagnosis of subacute appendicitis. The blood count gave the following results: Leucocytosis 83,000; polynuclear, neutrophilic leucocytes 68 per cent. The surgeon operating on the patient, found a chronic appendicitis with adhesions. This phenomenon confirms the fact that in spite of the high leucocytosis, the patient recovered because she had a mild infection and a great resisting power in her body. My own case confirms the value of leucocyte count in chronic appendicitis to determine the necessity of surgical interference.

A patient thirty-two years of age, suffered from a chronic appendicitis. For economical reasons he postponed the operation for an indefinite time. I was called in to see the patient at about 6 p. m. March 26, 1926, and I found that the patient had a mild attack of appendicitis and a normal pulse and temperature. Leucocyte count was 18,000; polynuclear percentage 84. The patient was sent to the hospital and on the following day was operated on. Subacute appendicitis and abdominal adhesions were found. The patient made a full recovery in nine days and gained twenty pounds in a few months. L. Vilson made more radical conclusions that in some cases which have a severe infection and a low body resistance (low leucocyte count and a high polynuclear percentage) the surgeon takes a big chance, if he undertakes operation. He advises to treat such cases medically. L. Vilson's statements confirm the phagocytic theory developed by Metchnikoff (the capacity of the leucocytes to digest the pathogenic microorganisms.)

My conclusions are—in every appendicitis case the differential blood count is just as important as the leucocyte count.

CLINICAL VARIETIES OF APPENDICITIS

Appendicitis in Children. Appendicitis is very common in children. The children under one year of age are less apt to become sick with this disease, than the school children. Dr. Isaac Abt found in the literature two cases of prenatal appendicitis. One case is described by Dr. Jackson in 1904. To a newborn baby by mistake was given bichlorid of mercury solution and he died forty hours after birth. Autopsy was ordered and performed by the Coroner's physician during which was found adhesions between the appendix and the cecum. These adhesions are possible only in cases of chronic appendicitis.

Sex. According to Abt's statistics, the disease occurs more frequently in boys. Of eighty-one cases of appendicitis, which he describes, fifty-four were boys, sixteen girls and in eleven cases sex was not mentioned. Among the eighty-one cases were twenty babies from one to three months of age. The frequency of the disease in children can be explained by embryological and anatomical anomalies of the appendix in individual cases and the increase of

the lymphoid tissue in the meso-appendix in babies.

With age, the appendix increases in size and is movable in the abdominal cavity. Appendicitis in children may perforate in a few hours (four, six or twelve hours) and cause general peritonitis. This fact explains the high mortality rate which we observe in appendicitis in children.

Dr. Harry Richter operated in Cook County Hospital on 185 appendiceal cases in children, including eighty-seven cases of perforative appendices which ended in—

Appendiceal abscesses	40
Retrocecal appendicitis	5
Ruptured appendix and general peritonitis	7
Ruptured appendix with fecal fistula	4
Pelvic abscesses	1

The rest were catarrhal appendices or with minor complications.

I want to mention here two abdominal complications which are frequently overlooked—subphrenic and rectal abscesses. According to Dr. V. Schrager's statement, all the pelvic abscesses in males are the result of a complicated appendicitis.

For diagnostic purposes it is necessary to make a rectal examination and examine the abdomen superficially to prevent the spread of the infection.

I will present to you a case of appendiceal abscess which I had three years ago.

A school boy, I. H., fourteen years of age, suddenly became sick and was confined to bed. When I came to see the case I found out from the past history that he had attacks of abdominal pain, which were treated symptomatically.

Physical examination revealed that he had a temperature of 103.5, a regular pulse 140 per minute, and the respiration reached twenty per minute. Throat negative. Chest, heart and lungs negative. Abdomen distended with gas and painful on palpation. A tumor mass was found in the right hypochondriac region which was circumscribed and soft in consistency. The rectal examination confirms the diagnosis of an appendiceal abscess.

Laboratory findings: The urine was negative. The blood—leucocytes 28,000, polynuclear neutrophilic leucocytes 76%. I recommended to the family an immediate operation which was postponed against my will until the morning.

The following day the patient was operated on in my presence by Dr. Harry Richter under general anesthesia. A perforated gangrenous appendicitis with localized abscess was found. The appendix was removed and the operation wound was partially closed by silkworm stitches and a cigarette drain inserted. The temperature after the operation dropped to normal but three days later rose again. The stitches in center of the wound were removed and irrigation of the wound with Carrel-Dakin solution was performed.

Peculiarities of appendicitis in children. The diagnosis of appendicitis in children is more difficult than in adults. Let us take, for example, babies under one year of age They are unable to talk and to express their exact complaints. Therefore, it is hard to localize the abdominal pain. Vomiting accompanies all acute infections and gastro-intestinal diseases. The temperature in such babies is not always high. Some malnourished children do not react to the infection so strongly and do not cause a rise in temperature. The only reliable method of diagnosis in babies is the physical examination. A delicate palpation of the abdomen and a rectal examination are of some value to the examining physician.

The flexion of the thigh to the abdomen is a very characteristic position taken by babies in appendicitis cases. Even by palpation it is difficult to discover the real pathology, because the appendix is palpable only in ten per cent of the cases. In a great many cases pain and tenderness are discovered in the left abdomen, when the pathology is on the right side (retrocecal appendicitis). The laboratory examination can help us only in cases of very high leucocytosis. As you know, normal children have a leucocytosis from ten to 20,000; polymorphonuclear leucocytes 34 per cent, lymphocytes 59 per cent, transitionals 6.4 per cent. (Gundobin, Julius Hess, and A. Levinson.)

Differential diagnosis. Appendicitis in children has to be differentiated from the inflammation of the right ureter (pyelitis), nephrolithiasis, undescendent testicle, intussusception, intestinal obstruction and gastro-intestinal diseases, which occur mostly in malnourished children.

According to Broca every appendicitis is preceded by an enterocolitis and some appendicitis cases are accompanied by a strangulated hernia (Dr. Isaac Abt).

Benjamin Breakstone and D. M. Sewell reported a case of an eighteen day old baby which had a tumor mass in the right inguinal region

---

The vermiform process of the female is smaller than that of the male and its blood supply is better in girls than in boys. (Julius Hess).

the size of a pigeon's egg. The swelling appeared suddenly and it was impossible to reduce it. The baby was operated on by Dr. Breakstone and when he opened the inguinal canal he found a congenital sac, containing the cecum, appendix and a small part of the ileum. The appendix was removed and a herniotomy was performed. The child made an uneventful recovery.

Every case of appendicitis should have a careful examination of the respiratory tract (throat and lungs).

Dr. Joseph Brenneman found pain in the belly in acute tonsillitis which confirms the focal infection theory of appendicitis, the spread of the infection from the inflamed tonsils through the lymphatic system into the mesenteric glands and finally to the lymphatic tissue of the mesoappendix. The pleuropneumonia can simulate appendicitis on account of the diaphragmatic pleurisy which goes along with the pneumonia of the base of the right lung. In my cases Miss E. L. had a combination of acute tonsillitis, pneumonia of the right lung and acute appendicitis. Baby K. developed acute perforative appendicitis after an acute tonsillitis. Both patients recovered after an emergency operation (appendectomy and drainage).

In discusssing the question of appendicitis in children I want to impress upon you, that pinworms (oxyuris vermicularis) are a very common cause of the disease, that appendicitis may occur after acute infectious diseases (grippe, scarlet fever and typhoid fever) and that several cases of appendicitis may occur in one family (Dr. Isaac Abt).

The best treatment is prompt operation to prevent complications (perforation and general peritonitis). In the postoperative treatment push fluids trough saline solution under the skin (Murphy drop by drop method is not used in babies).

Chronic appendicitis. The German pathologist Aschoff said, that every chronic appendicitis is a result of an acute process. The infection probably was so mild, that the patient did not pay enough attention to it and did not consult a physician. Chronic appendicitis may give mild dyspeptic symptoms as pain in epigastrium after meal, nausea and vomiting, hyper-acidity and is diagnosed as *gastric ulcer.* Or the appendicitis manifests itself with pain in the region of the gall bladder which radiates to the shoulder. Such cases are usually diagnosed as cholecystitis. Chronic appendicitis should be differentiated from colitis (mucus in the stool), nephrolithiasis on the right side and in rare instances from tuberculosis and carcinoma of the cecum, tuberculous peritonitis, coprostasis, chronic intussusception, floating kidney, cystitis (when hematuria occurs during the attack). According to Dr. John A. Lichty the hematuria is due to direct extension from the appendix to the right ureter. Keep in mind also psoas and iliac cold abscesses, the result of Pott's disease. In females the appendicitis can be confused with inflammation of the right ovary and right Fallopian tube also with enteroptosis and general asthenia in neurotic women. The removal of the appendix improves all the dyspeptic symptoms and the patient gains in weight after the operation.

X-Ray examination of the gastro-intestinal tract is a decisive factor in diagnosis of all obscure abdominal conditions, as an addition to a routine physical examination and all other laboratory tests (blood, stool, urine and gastric analysis). The patient is given a barium meal. At first we make a fluoroscopic examination and then take plates of the gastro-intestinal tract.

During the fluoroscopic examination of the stomach we look for the position of the organ in the abdominal cavity (to exclude gastroptosis) for a niche or incisura on the lesser curvature to exclude gastric ulcer. Then we examine the shape of the pylorus and duodenal cap. An incisura in the duodenal cap means duodenal ulcer.

Pylorospasm does not mean only gastric pathology. It can be found also in chronic appendicitis as a result of adhesions between the appendix and the stomach.

Six hours after the barium meal was taken in the second examination is made. Gastric residue, if found, means obstruction of the pylorus by organic lesion or by gastric neurosis. To differentiate these two conditions we give the patient ten drops of tincture belladonna, which relieves the obstruction in functional cases and has no effect on organic lesions. Twenty-four and forty-eight hours examinations are the most important ones in diagnosis of chronic appendicitis.

Colonic stasis is a condition in which the barium mixture is retained in the large intestines after twenty-four or forty-eight hours. Normally the bowels are empty after that time. In chronic

appendicitis we can see that the cecum is filled with barium on the twenty-four or forty-eight hours plates, and the other parts of the colon (the transverse or the descending part) is in the stage of spasmodic contractions, and has a stringlike appearance.

Such conditions are seen also in chronic colitis.

The vermiform process in chronic appendicitis is visible (filled with barium) kinked or angulated and segmentated. Visible appendix means pathology only after thirty years of age because normally the appendix is obliterated at that time (B. Cushway). This method of diagnosing chronic appendicitis by x-ray examinations is in detail described by Russel D. Carman and Bertram G. Cushway.

In my private practice in Chicago, I had two obscure cases which I diagnosed as chronic appendicitis by means of x-ray. One of my patients, Mrs. E. C., thirty-two years of age, had pain in the right lower abdomen and other dyspeptic symptoms for seven long years and suffered a great deal. After a physical examination I diagnosed a chronic appendicitis and sent the patient to the x-ray laboratory. By fluoroscopic examination the cecum was fixed and tender and the appendix visible forty-eight hours after the barium meal was taken in.

The other patient, Mr. S. E., gave a history and clinical symptoms which were similar to those provoked by gastric ulcer. The x-ray examination decided the question in favor of chronic appendicitis. Both patients were operated on; the first at Mt. Sinai Hospital by Dr. Victor Schrager, and the other at Lutheran Memorial Hospital by Dr. Charles Stotz. The operations confirmed the diagnosis in both cases. Complete recovery followed after the operation and all the dyspeptic symptoms disappeared.

Appendicitis in Married Women. The frequency of appendicitis in newly married women is striking and the gonococcus from the infected tube is very often the etiological factor (Dr. Joseph B. DeLee).

A woman who had chronic appendicitis during pregnancy may have acute attacks. During the first four months the prognosis is more favorable than between the fifth and eight month. If the appendicitis is not complicated (an acute catarrhal) the appendix can be removed without danger to the fetus. In suppurative appendicitis watchful expectancy is the best method of treatment—we wait a few days until adhesions are formed around the appendiceal abscess—to prevent the spread of the pus along the peritoneum.

According to DeLee (thirty cases) and Schmid (486 cases) the suppurative appendicitis has a grave prognosis and a high mortality.

De Lee said: "The inflammation is more stormy, owing to the intense vascularity of the parts. The protective adhesions are less likely to be formed, the omentum and the intestines are pushed away by the enlarged uterus and the abscesses burrow deeply in all directions. A bacteremia may occur in the blood and placenta and cause abortion, premature labor, death of the fetus, sepsis and septic endometritis."

If the attack of appendicitis occurs during labor, the labor is very painful, the contractions of the uterus are weak and the labor is prolonged in all three stages. Manual removal of the placenta is needed. The inflamed appendix may rupture during the contractions of the uterus, which results in general peritonitis.

Appendicitis has to be differentiated from ectopic pregnancy and twisted ovarian tumor, also from puerperal sepsis when a suppurative appendicitis occurs in the stage of puerperium.

In non-pregnant women the appendicitis may be confused with salpingitis and oophoritis. Bimanual examination clears up the diagnosis.

Treatment: Every case of chronic appendicitis which gives repeated attacks, should be operated on before the woman becomes pregnant. During gestation operate without delay in the early months of pregnancy to avoid abortion and premature labor.

In case of abortion special precautions are taken to avoid the breaking up of protective adhesions around the appendiceal abscess (conservative treatment and careful curettement). In suppurative appendicitis a laparotomy is performed—the appendix is removed first and the baby is then removed through a cesarean section. Rest in bed, starvation diet, ice bag to the abdomen and tincture of opium—those are the lines of medical treatment.

Starvation Diet. The patient is given tea, soup, but not milk to avoid gas distention. Tincture of opium internally (ten drops three times a day) or morphine hydrochloride, one-fourth of a grain in 1 cc. of distilled water hypodermically is given by many clinicians. Dr. John Deaver does not recommend the use of

opium. He bases his opinion on the fact that opium confuses the clinical picture. Dr. Otto Foerser, Sahli and Forsheimer strongly recommend the use of opium in such cases. The principle of the treatment is to relieve the patient's suffering and the shock caused by severe pain, and reduce the intestinal peristalsis and to stop the vomiting. The use of laxatives is contraindicated. Oil enemas are permitted to use only on the fourth day since the onset of the disease. In severe cases with toxemia normal salt solution is injected hypodermically.

Prophylaxis: Operate in the intervals between attacks on all cases of chronic appendicitis in men and especially in married women to prevent a complicated pregnancy.

SURGICAL TREATMENT

The operation is performed according to the general rules of asepsis and antisepsis. The appendix is removed, the base is inverted and a caustic in the form of carbolic acid is applied to the stump. The operative wound is closed by three rows of stitches (catgut for the peritoneum and fascia and silkwormgut for the skin). The routine incision is made at McBurney's point. John B. Murphy, who popularized the idea of early operation on acute appendicitis in the United States through his operative work and scientific articles, used to make a bottle incision (along the rectus muscles) and covered the appendix with sterile gauze to prevent the spread of the infection to the peritoneum.

Drainage. In appendiceal abscesses the surgeons are closing up the wound for a few days to favor the formation of protective adhesions and after that they are draining the pus

2358 W. Chicago Avenue.

BIBLIOGRAPHY

Abt, Isaac I.: Appendicitis in Infants. Arch. Pediatrics, 1917.

Brennemann, I.: Abdominal Pain of Throat Infection. Am. J. Dis. Child, November, 1921, page 493.

Breakstone, B.: Strangulated hernia in an eighteen days old baby. Amer. Med., May, 1926, page 323.

Berlinski: Index Catalog of the Library of the Surgeon General's Office. U. S. Army, Vol. 1, 2nd Series, page 501 and page 84, 1908.

Carman, R.: The Roenteen Diagnosis of Diseases of the Alimentary Canal. Chronic Appendicitis, page 601.

Cushway, B. G.: Lectures in the Science of Radiology. Appendicitis. Post Graduate Hospital and Medical School, Chicago, 1926, page 141.

Deaver, J. B.: Acue Appendicitis. Medical News, May, 1894.

De Lee, J. B.: The Principles and Practice of Obstetrics. Appendicitis in Pregnancy. Saunders and Company, Phila. and London, page 509, 510.

Hess, Julius H.: The Diagnosis of Appendicitis in Children. Ill. Med. Jour., 1905, and Arch. Ped., May, 1905.

Holmes, B.: Appendicitis. Appleton and Company, New York, 1904, page 241.

Jackson: Am. J. Med. Science, April, 1904, page 710.

Lichty, I. A.: Appendicitis. Tice, Practice of Medicine. Prior Company, Hagerstown. Vol. VII, page 625.

MacCarthy, W. C.: Collected papers of Mayo Clinic and Mayo Foundation. Classification of Appendicitis, 1910, page 235, 244.

Murphy, John B.: Acute Appendicitis. J.A.M.A., March, 1895.

Richter, H.: Appendicitis in Children. Abt's Pediatrics, Phila. and London. Vol. III, page 552.

Rosenow, Edward and Stella Dunlap: An Epidemic of Appendicitis. Collected Papers of Mayo Clinic and Mayo Foundation, 1915.

Schrager, Victor: Rectal Drainage of Appendiceal Pelvic Abscess. Surgery, Gyn. and Obst., 1916, page 482.

Vilson, L.: The Value of Sondern's Differential leucocyte resistance line in diagnosis and prognosis of acute appendicitis. Collected papers of Mayo Clinic and Mayo Foundation, 1905-1909, pages 280-292.

Levinson, A.: Clinical and Laboratory Methods Used in Pediatric Practice, page 10.

THE CLINICAL VALUE OF LIVER FUNCTION TESTS

HARRY J. ISAACS, M. D.

Assistant Professor Medicine, Rush Medical College,
Attending Physician, Cook County Hospital,
Associate Attending Physician, Mt. Sinai Hospital,

CHICAGO

The liver fulfills a most important and varied role in metabolism. It participates in the process of resorption, in storing up certain substances in the process of intermediary metabolism, and in the breaking up of foodstuffs. It also has disintoxicating functions, and plays a role in iron metabolism. There are quite a number of liver function tests, but the simplest and most satisfactory ones are 1. Urobilin and Urobilinogen tests, 2. Van den Bergh, 3. Icterus index, 4. Phenoltetrachlorphthalein (dye) test, and 5. the Fouchet test.

The urobilinogen test is carried out with Ehrlich's aldehyde reagent. After urobilinogen stands in the air it is converted to urobilin. Both are products of bilirubin. In cases where there is total occlusion of the bile, urobilin and urobilinogen are absent from the urine. Therefore, in severe icterus, absence of these substances in the urine is of value.

The differential diagnostic significance of urobilin is limited, because it is also found in a number of diseases of the gastrointestinal tract, as carcinoma of the digestive organs, scarlet fever, F. A. pulmonary tuberculosis and in cardiac insufficiency as an indication of passive

congestion of the liver. Eppinger points out that the finding of urobilinogen in the urine with circulatory insufficiency, when one is in doubt as to whether the insufficiency is of cardiac, vascular or renal origin, always indicates that the cause is cardiac. The reappearance of urobilinogen and urobilin after obstruction indicates that the bile ducts are again allowing the bile to pass through.

Naunyn has brought out the point that icterus is always a symptom of disease of the biliary ducts, as it is probable that the liver cells do not form bile pigments. Not every disease of the biliary ducts is accompanied by icterus. Until recently every form of icterus was considered to be of hepatogenous origin. The newest work, especially that of Van den Bergh, shows that the reticulo-endothelial system (Kupffer cells, spleen, lymph glands and bone marrow) has the property of forming bilirubin from the blood pigment, so that a hematogenous icterus is possible.

Van den Bergh showed that a small quantity of bilirubin in the blood is physiologic. The most important finding of Van den Bergh from the standpoint of differential diagnosis is that the bilirubin of hematogenous origin gives a different reaction from that excreted by the liver cells and reabsorbed. Hepatic bilirubin (direct) in the blood gives the diazo reaction for the direct demonstration of bilirubin in the blood without the addition of alcohol. The bilirubin which does not pass the liver shows a reverse reaction. On the basis of a direct or indirect Van den Bergh, one is able to tell whether the jaundice is hepatogenous (obstructive) or hematogenous (nonobstructive), respectively.

The Van den Bergh is really a qualitative test for the determination of bilirubinemia. Ehrlich's diazo mixture is added to the blood serum. A direct reaction speaks for an obstructive jaundice, while an indirect reaction speaks for a nonobstructive jaundice. In obstructive jaundice the blood serum changes from yellow to pink or violet (direct reaction). In the indirect reaction (nonobstructive jaundice) the serum is first treated with alcohol and then with Ehrlich's diazo mixture and a postive test gives a pink or violet color. This test is very easy and can be done in your own office. A direct Van den Bergh always indicates an obstructive jaundice and occurs in conditions such as common duct stones, cirrhosis of the liver, carcinoma of the liver and carcinoma of the head of the pancreas. The indirect reaction is positive in both obstructive and nonobstructive jaundice, and the direct reaction is negative in nonobstructive jaundice. An indirect Van den Bergh occurs in such conditions as acute hemolytic jaundice, icterus neonatorum, cardiac decompensation, pernicious anemia, phosphorus poisoning, and jaundice occurring in the course of an acute infectious process such as pneumonia.

The icterus in cardiac disease has the following peculiarities, in that it occurs suddenly and lasts but a short time and is of hematogenous orgin (indirect Van den Bergh).

The phenoltetrachlorphthalein (dye) test was first studied pharmacologically by Abel and Rowntree and was introduced into the practice of medicine as a liver function test by Rowntree and his collaborators, Whipple and Marshall, in 1913. The technic was improved upon by Rosenthal. The principle of the dye method lies in the disintoxicating function of the liver. After the intravenous injection of 5 mgs. of the dye per kilo of body weight, the normal liver removes the dye from the blood stream at a definite constant rate. At the end of fifteen minutes only 3 to 7 per cent. of the dye remains in the blood stream, and should be entirely gone in one hour. In hepatic disease the amount of dye still present in the blood one hour after injection and the increase above normal afford a quantitative index of the degree of functional impairment of the liver.

Technic (dye): Five mgs. of phenoltetrachlorphthalein are injected intravenously for each kilo of body weight. At the end of fifteen minutes and at one hour about 5 c.c. of blood are withdrawn and allowed to clot in test tubes and then certrifuged. Equal quantities of the serum from each specimen are then pipetted off into three small test tubes, and to two of these tubes a drop of 3 per cent. HC1 is added (this clears the serum of any hemolysis). To the other tube a drop of 5 per cent. Na OH is added (makes red color with dye). The color is then compared with a standard colorimeter (made by Hynson-

Wescott & Company) and the readings are recorded.

Interpretation of Results:

Time after injection	Normal per cent dye in serum	Impaired function
15 minutes	3—7%	8—35%
1 hour	0—2%	3—35%
2 hours	0%	3—35%
24 hours	0%	1—10%

The icterus index is a quantitative test of bilirubinemia. The normal readings are 3-5. When bilirubin is not excreted normally, it accumulates in the blood and thus a higher reading is obtained. The blood serum is collected and compared with a colorimeter having as a standard a 1-10,000 potassium bichromate solution. The technic is simple, as are the dye and Van den Bergh tests, and can easily be done in the office.

The liver function tests should be used in all cases associated with jaundice. A direct Van den Bergh always speaks for an obstructive type of jaundice, while an indirect Van den Bergh always designates a hemolytic jaundice.

Very often one cannot differentiate a primary anemia from a secondary anemia. A primary anemia (pernicious anemia) always has a high icterus index (30+), while a secondary anemia has a normal count (3-5). If one wishes to differentiate an acute catarrhal jaundice from a carcinoma of the liver or head of the pancreas, icterus index readings will show that in the catarrhal jaundice the readings decrease from time to time, while in the malignant affair the readings increase.

Shattuck, Brown and Preston[1] have shown that in passive congestion of the liver (primary heart) all cases with an icterus index above 16 offered a poor prognosis.

Very often one is confronted with a case where it is impossible to differentiate between an appendix or gall bladder disorder or a peptic ulcer. A high icterus index (20+) usually speaks for a gall bladder infection and helps to clinch the diagnosis. We have had quite a number of cases in which the gastrointestinal symptoms were vague, and the physical findings, Roentgen-ray, etc., did not give the required information to make a diagnosis. A high icterus index in these cases helped to clarify a chronic gall bladder disease.

Every case of syphilis that is being treated with arsenicals should have a liver function test (preferably an icterus index). A reading above normal informs one that the liver is being damaged by the arsenic and is an absolute indication to stop the treatment. A lowering of the icterus index reading in cases of syphilis of the liver that are undergoing treatment shows that the patient is responding to the therapy.

Not only are these tests of value to the medical man, but the surgeon can make good use of these. Very often a surgeon is confronted with an operative case in which jaundice is present, such as common duct stone, etc. One knows that these are the types of cases that suffer from post-operative hemorrhage, and that many men can report deaths following operative interference in cases with jaundice. In these cases an icterus index reading is of great importance. A high reading, such as 100 or more, is an absolute contraindication for operative interference. These cases should have repeated fractional blood transfusions (100 c.c. whole blood) with calcium chlorid intravenously (repeated if necessary). After this has been done and there is a marked reduction in the icterus index reading, then only is the surgeon warranted in operating.

CONCLUSIONS

1. Every case of jaundice should have a liver function test.
2. The dye test and the icterus index are quantitative tests for bilirubinemia.
3. The Van den Bergh is a qualitative test for bilirubinemia.
4. A direct Van den Bergh speaks for an obstructive type of jaundice.
5. An indirect Van den Bergh speaks for a hemolytic or nonobstructive jaundice.
6. A high icterus index reading speaks for a primary anemia, in differentiation to a secondary anemia.
7. A high icterus index (20+) in a vague gastro-intestinal case when one wants to differentiate between a peptic ulcer, appendix and a gall bladder disorder, always speaks for a pathological gall bladder.
8. Heart cases showing an icterus index of 16 plus offer a poor prognosis.
9. All cases of syphilis that are undergoing

1. Shattuck, Brown and Preston: Studies of the Icterus Index, American Jour. Med. Sci., October, 1925, 591.

specific therapy should have a liver function test to see whether or not any damage is being done to the liver.

10. All operative cases associated with jaundice should have a liver function test to see whether or not they are good operative risks.

11. An icterus index that is decreasing speaks against a malignancy, and vice versa.

12. The finding of urobilinogen in the urine with circulatory insufficiency, when one is in doubt as to whether the insufficiency is of cardiac, vascular or renal origin, always indicates that the cause is cardiac.

13. These tests are comparatively simple and can be done in the office if necessary.

310 South Michigan Avenue.

GANGRENE OF THE SCROTUM DUE TO SELF-INDUCED RUPTURE OF THE URETHRA*

BERNARD P. CONWAY, M. D., AND EDWIN W. HIRSCH, M. D.

CHICAGO

Gangrene of the scrotum is a serious surgical problem and becomes more so when the etiological factor is not readily determined. The most dangerous type is that complicated with extravasation of urine, not only because the urine has a necrotic action upon the tissue but a severe intoxication is caused by the absorption of the urinary products. The case herein presented is unusual in that there was a rupture of the urethra without any instrumentation or trauma.

Case Report—The patient, aged 37, an Italian who has resided in America for 20 years. He has been married 10 years but has no children. At the age of 27 he suffered a mild gonorrheal infection, which lasted six weeks.

On January 6, 1927, he became ill and complained of pain in his lower back, headache and difficulty in urinating. A physician was called and diagnosed the case as intestinal flu. He was advsed to force elimination of urine by pressing on his lower abdomen, which he did twice each day. Two weeks after the onset of his illness, he noticed a swelling of his abdomen and passed decreasing amounts of urine for the next three or four days. Severe obstipation was associated and caused intense distress. The patient conceived the idea of expressing the bowel content and urine by drinking a quart of olive oil but obtained no result. Failing in this, he got out of bed and put a belt around his body and placed his hands beneath the belt with the palms against the lower abdomen. After taking a deep breath, he mustered every ounce of energy and so forcibly pressed against his distended abdomen that he effected a profuse bowel evacuation. Urine also came away. A few seconds later he fell to the floor in a faint because of pain and weakness. On the next day he noticed a swelling of the scrotum and was desperately ill during the following week.

On admission to the hospital, the patient was in shock; his temperature was 98.6. White count 15,000, hemaglobin 70%; R. B. C. 3,800,000. The urine was turbid, due to a profuse growth of bacteria. The scrotum was about four times the size of a man's fist, and brownish black in color. Hot boric dressings were applied to the scrotum. On the next day he was removed to the operating room and three longitudinal incisions were made in the scrotum, each about 8 cm. in length; one in the center and one on either side of the median raphe at a distance of 3 cm. After making the skin incision, a gristly mass, 2 cm. in thickness was encountered. When this was incised, a thick, foul-smelling, greenish pus oozed out. While effecting communication between the three incisions a sac was encountered which contained about an ounce of a thin amber colored fluid resembling urine. Several necrotic masses of tissue were removed and drains inserted. Hot boric dressings were applied. The patient was improved on the following day and took some nourishment. Smears and culture from the pus showed colon bacilli.

However, the foul odor did not lessen and it was felt that a more effective method of combating the infection must be employed. Dakin tubes were inserted into the incised areas and pulled through the gangrenous tissue so that every possible portion of the diseased tissue would be bathed in Dakin fluid. Six Dakin tubes were inserted and every two hours the nurse flushed two ounces of Dakin fluid through each tube, thus allowing thorough saturation with hypochlorite solution. Improvement immediately followed and within a few days the wound had a healthy appearance. Three weeks later the scrotum was reduced to almost normal size, and the patient went home.

Though the local condition was healed, the patient continued to run a septic temperature around midnight which ranged from 100° F. to 102° F. A blood culture was negative, though his rapid pulse, profuse midnight sweats, weakness and dyspnea on slight exertion pointed to a septicemia. The patient gradually lost ground and manifested evidence of a failing heart due to sepsis. Three months later he died from an endocarditis and general sepsis.

The only finding which could account for the difficulty in urinating was a large stricture located in the membranous urethra. We repeatedly questioned the patient regarding any possible urethral instrumentation and we were satisfied that his urethra had not been mechanically traumatized. However we obtained the

*Read before the South Side Branch Chicago Medical Society, February, 1927.)

admission that he had consulted physicians for the cure of his sterility but as their treatment did not restore his virility he resorted to drinking his own medicine, which consisted of home-made wine. It is quite possible that an over ingestion of alcohol increased an already existing posterior urethral inflammation and caused the stricture to partially block the outflow of urine. The presence of urine in the tissue adjacent to the urethra must have necessitated a rupture of the urethra.

REVIEW OF LITERATURE

A search through the literature reveals gangrene of the scrotum to be an exceedingly infrequent affection and in the entire German literature Coenen and Przedbarski[1] were able to find but 200 cases. Their classification is as follows:

Gangrene following.

I. General Diseases:
  (a) Infections:
    Influenza.
    Erysipelas.
    Pneumonia.
    Malaria.
    Typhus.
    Cholera.
    Tonsillitis.
  (b) Diseases of Metabolism:
    Diabetes.
  (c) Diseases of Vascular System and Kidneys:
    Decompensated heart lesion, arteriosclerosis.

This group includes 15% all cases.

II. Local Diseases:
    Chancroid.
    Phimosis.
    Orchitis.
    Balanoposthitis.

Stirling[2] reports a case following circumcision.
This group includes 70% of all cases.

III. Mechanical conditions:
  (a) Urine infiltration due to trauma, cutting urethral structure, etc.
  (b) Application of chemicals to scrotum.
  (c) Heat.
  (d) Frostbite.
  (e) Strangulation of scrotum, artificially induced.

This group constitutes 15% of all cases.

MacKenzie[3] reports the case of self-induced scrotal gangrene in a man who had a double scrotum. To rid himself of the defect, he tied the lobes of the scrotum together. Gangrene ensued which necessitated amputation of the scrotum.

Cases of scrotal gangrene have been termed idiopathic when the initial lesion was distantly removed from the scrotum as in Castle's[4] case, where it followed a tonsillar infection. Spontaneous gangrene of the scrotum is the designation chosen by Schonbauer[5] to refer to that group in which the initial lesion can not be demonstrated.

A great many organisms have been isolated from scrotal gangrenous tissue. Thibault and Schulman[6] obtained a culture of bacilli perfringens (Welch) from their case and successfully employed the serum of Weinberg and Seguin. The bacillus of malignant edema, streptococci, Ducrey's bacillus, colon bacillus, gram positive anaerabic bacilli and cocci, and Vincent's organisms have also been isolated.

COMMENT

Undoubtedly, the rupture of the urethra occurred just behind the strictured site, for in this area the urethral mucosa was softened due to long continued inflammation.

A rupture of the urethra may occur without instrumentation.

Wide incision and the institution of Dakin irrigation and drainage is an efficient method of treating the gangrenous scrotum.

An external urethrotomy should be done in all cases of grangrene of the scrotum associated with extravasation of urine or stricture. This prevents further absorption of urinary toxic products. No urethrotomy was done in that case because no history was obtainable prior to the operation, and there was no gross hindrance to the diagnostic bougie.

The mortality of scrotal gangrene is high and has been estimated from 23% to 33%.

BIBLIOGRAPHY

1. Coenen and Przedbarski: Beitr. z. klin. Chir. 1911, 75, H. 1.

2. Stirling, W. C.: Gangrene of Scrotum and Penis. J. A. M. A., 80:622, Mar. 3, 1923.

3. Mackenzie, K.: Double Scrotum With Gangrene Following Strangulation. S. G. O., 35:603-604, Nov. 1922.

4. Castle, H. A.: Idiopathic Genital Gangrene. Northwest Med., 24, 61-63, Feb. 1925.

5. Schonbauer, Leopold: Zwei Falle von Spontanganran des Hodensackes. Wein. klin. Wchnschr., 34:96, Mar. 3, 1921.

6. Thibault, A., and Schulmann, E.: Gangrene of scrotum from anaerobic infection. Bul. et men. Soc. med. d. hop. de Par., 53:70, Jan. 31, 1919.

SPONTANEOUS OVARIAN CYST

R. CARTER CRAIN, B. S., M. D.
Assistant in Surgery, Northwestern University Medical School,
CHICAGO

A review of the literature relative to spontaneously appearing and disappearing ovarian cysts yields scant information. Nevertheless the condition is probably not as infrequent as the evidence indicates. Tait,[1, 2] was aware of it, but always attributed the disappearance to rupture of the cyst. Wells[3] considered spontaneous cures of so-called ovarian cyst as cases of pelvic cellulitis that had undergone resolution. Ries[4, 5] has reported three cases that came to operation and Stein[6] has described one case. No other references to this apparent clinical entity can be found.

The patient I wish to report has been under observation for two years and ten months. A well developed female, aged 28, unmarried, was first seen February 8, 1924. Her chief complaint was pain in the left lower quadrant, more pronounced when standing or walking, and of three months' duration. The pain had gradually increased in severity until at the time of examination she was unable to work. She was a waitress and this required her to spend several hours a day lifting and carrying trays.

The general and pelvic history was negative. Menses began at thirteen years, regular, painless, twenty-eight day type, and of four to five days' duration. There was no evidence of pelvic infection.

Bimanual examination revealed a smooth, movable, globular mass at the left side of the uterus, apparently the size of a grapefruit. A patency test of the fallopian tubes registered 50 to 55 mm. pressure of mercury and was followed by a roentgenogram of the pelvis. The plate showed an ovarian cyst on the left side. Operation was advised and the patient returned home to make preparation to enter the hospital.

Two weeks later she reported at the office, feeling perfectly well. There had been no pain or discomfort for several days. Upon bimanual exaxination I was unable to palpate a mass or elicit any tenderness.

She returned to work and did not consult me again for four months, at which time there was a distinct mass on the left side but smaller in size than the one felt at the first examination. After two weeks' rest away from work no swelling could be made out. This time I advised her to find work that would not require lifting and standing. The suggestion was accepted and eight negative examinations were made in the following two years. At an office visit in September, 1926, a left-sided mass, the size of a fist, was distinctly palpable, and she admitted having returned to her previous occupation. A three weeks' vacation was followed by several negative examinations. Recently the patient has married. She will continue under observation.

25 East Washington Street.

REFERENCES

1. Tait, Lawson: Diseases of the Ovaries. Wm. Wood and Co., New York, 4th Ed., 1883, 169.
2. Idem. Diseases of Women and Abdominal Surgery, Lea Brothers and Co., Phila., 1889, 366.
3. Wells, F. Spencer: Diseases of the Ovaries. D. Appleton and Co., New York, 1873, 225.
4. Ries, E.: Zeitschrift f. Geburtsh. u. Gynäk., Stuttg., 1913, lxxiv, 312-320.
5. Idem: J. A. M. A., 1919, lxxiii, 100-103.
6. Stein, I. F.: Surg. Clinics of N. A., August, 1926, 1067-79.

SPOROTRICHOSIS CASE REPORT

HOWARD WAKEFIELD, M. D.
CHICAGO

While many cases of sporotrichosis have not been placed on record, it is still a rare disease and in the United States to date 148 cases have been placed on record. Foerster of Milwaukee has recently made a survey of these cases and reported the results of his study in the Journal A. M. A., 87:1605-1608, Nov. 13, 1926. The first case was described by Schenck in 1898 (Bull. Johns Hopkins Hosp., 93:286, 1898), and since his time cases have been described by Hektoen and Perkins, Hyde and Davis, Stelwagon, Pusey, Sutton, Hamburger, Wilder, McCullough and others.

The following case illustrates very well the importance of the barberry shrub in the etiology of sporotrichosis:

The patient, a white man, age 48 years, *a gardener,* was admitted to the surgical service of Cook County Hospital, Dec. 10, 1925, complaining of what he called multiple boils of the right forearm.

About eighteen days previous to his entrance to the hospital he noticed on the volar surface

of the right forearm near the wrist, a lesion which he described as a boil and which he opened and expressed grayish-yellow pus on several occasions. About a week later a similar lesion appeared on the volar surface of the right forearm, about two inches proximal to the original mass. For the next ten days similar lesions appeared in succession up the right forearm and arm. One of them broke open spontaneously and discharged a grayish-yellow pus. There was no pain associated with any of the lesions.

Questioned as to any past history of trauma to the right upper extremity he recalled that about two weeks preceding the appearance of the initial lesion on his wrist, he had punctured his right hand several times with the thorns of the barberry shrub which he was trimming.

On admittance, physical examination revealed an adult white male about 45 years of age, fairly well nourished and not acutely ill. His temperature was 98.6 F., pulse 78 and respirations 20 per minute.

On the center of the volar surface of the right forearm and arm were a series of hard nodular masses about two inches apart, arranged in a straight line. The masses were circular, dull red, raised, circumscribed, and varied in diameter from a pea to a twenty-five cent piece. The lesions on the forearm were larger than those on the arm. Connecting each mass was a hard palpable cordlike line, suggesting lymphatic involvement. Several of the lesions were crusted, others open and discharging a grayish-yellow material like pus. The masses were not painful or tender on palpation and the axillary lymph nodes on the right side were only slightly palpable.

The rest of the physical examination was essentially negative except for three external hemorrhoidal tags. The urine examination was negative and the blood cell counts within normal limits. There was no history of tuberculosis or syphilis and the x-ray plate of the chest was negative as well as repeated blood Wassermanns.

On microscopic examination of material aspirated directly from one of the lesions, there were oval-like bodies which suggested sporothrix. Guinea pigs and white rats were inoculated with the aspirated material and cultures made on carbohydrate media. Agglutination reactions also were studied. The bacteriologic study proved that we were dealing with a sporotrichotic infection.

The patient was treated at the beginning with thirty grains of potassium iodide daily by mouth. The doses were gradually increased until he was receiving 120 grains daily. Locally nothing was done except to keep the lesions dressed with dry sterile pads which were changed daily. This treatment was continued for two months at the end of which time his lesions had practically all cleared up. His general health during his stay in the hospital was very good, being up and about every day and at no time did he have any fever or any complaints, except his arm condition. At the end of two months he was discharged and advised to take thirty grains of potassium iodide daily for one month when he was to return. Examination since that time has revealed no recurrence and the lesions have entirely healed. For the bacteriologic work in this case I am indebted to Miss Bertha Kaplan, Bacteriologist at the County Hospital.

1421 East 53rd Street.

THREE YEARS OF EXPERIENCE WITH INSULIN IN THE TREATMENT OF DIABETES MELLITUS

WM. H. OLMSTED, M. D.
ST. LOUIS, MO.

Insulin became available for our use in October, 1922. Since that date we have had about four hundred diabetics under observation and of this number about one-half have needed insulin.

The benefits of insulin to the diabetic may be classified under three heads:

First: It has prolonged the span of life of all classes of diabetics: The severe cases, those who could not tolerate their basal calories and who, before the days of insulin, died in a relatively short time are now able to tolerate sufficient calories to enable them to gain weight and even to resume their duties, if not too rigorous. The moderately severe cases, those who could tolerate their basal calories and perhaps a small additional amount of food, but necessarily lost weight if pursuing any active occupation, are now able to carry on active duties and support families. The mild cases, those who are fat or above normal weight, have need of insulin only at times

of emergency, such as when infection is present, during cerebral accidents and at times when operations are necessary. Before the days of insulin many mild diabetics died when some one of these complications was present.

In the first two classes the use of insulin has prevented under-nutrition and, in our experience, a high percentage of these, say 20 per cent or more, have some form of chronic infection, especially tuberculosis. The prevention of under-nutrition in diabetics increases their resistance against these chronic infections. It seems not an exaggeration to say that insulin adds five or ten years to the life of a diabetic.

Second: Just as important as the prolongation of life is the saving of economic waste which is made possible by the use of insulin. It was indeed distressing, in pre-insulin days, to see the number of diabetics who were unable to take an economical place in society, being completely dependent upon other people and often unable to prepare their own diets. Now these same patients are not only able to pursue their occupations, but are able to do more work. I have in mind the case of a man who has been under observation for four and a half years. At the beginning of our observations, he was in the position of assistant cashier in a bank and was hardly able to do his work; he had sugar most of the time, and was thoroughly discouraged. For the past three years, with the help of insulin, he has not only been able to keep his former position, but has recently been promoted to the position of cashier with considerable added responsibility.

Third: The greatest benefit which insulin could bestow upon the diabetic would be the cure of his disease. During the first year or two of our experience with insulin we felt that it was not a cure for diabetes. The only cases suitable for study in determining whether the use of insulin will make possible the regaining of the ability of the islet cells to produce their own insulin, are the young, severe cases. We know what happened to these in the pre-insulin days. The gaining of tolerance in such cases was extremely rare and death usually ensued in a few years at best. I wish to present three cases of the above type, which I have been observing for from four to five years. Interesting changes have taken place in these patients during the past year.

CASE 1. Miss T., nurse, 24 years old. Sugar was discovered in the urine while in the hospital in charge of the diabetic ward, about a year and a half before insulin was available. In treating this case blood sugars were taken twice a week and whenever the blood sugar rose to .15 the diet was decreased correspondingly. Following the onset of the disease, the patient gained in tolerance up to 100 grams of carbohydrate, during a period of about four months, and then in spite of reduction in diet before glycosuria, tolerance was lost and the carbohydrate was cut from 100 grams to 30 grams. Just before insulin was available, she was taking a diet corresponding to her basal calories and sugar was present in the urine. With 50 units of insulin a day and 1,800 calories, she gained in weight from 90 to 115 pounds and in two years was able to resume her occupation. Six months ago she began to have violent insulin reactions. The blood sugar during one of these reactions was found to be .06. The insulin was reduced ten units at a time, and at present she is taking 1,800 calories, of which 50 grams is carbohydrate, and only 25 units of insulin. Here we have a clear cut instance of the failure of a dietary treatment even under the very best of circumstances, for this nurse for one whole year took all of her meals in the metabolism ward of the hospital; and also, accompanying the use of insulin, an increased production of insulin on the part of the patient's own islet cells.

This would suggest that insulin is different in one respect from our endocrine hormones. For instance, it is well known that when thyroid is given by mouth, the function of the thyroid gland of the animal decreases rather than increases.

CASE 2. Mrs. M., 38 years old. Came under observation one year before insulin was available. During that time patient lost weight until she reached 85 lbs. There was also evidence that she has chronic fibroid tuberculosis. Her diabetes was of the severe type, being unable to keep sugar free except when the diet contained only about 1,000 calories. With the use of insulin patient gained from 85 to 116 pounds; requiring 55 units daily on a diet of 1,800 calories. She took this amount of insulin and this diet for two years and then began, just as Case 1. to have insulin reactions. 20 grams of carbohydrate was added to the diet and the insulin reduced to 35 units per day.

CASE 3. Mrs. N., 21 years old. Also under observation for a year preceding the advent of insulin. This patient had sugar in the urine on a very rigid diet of approximately her basal calories. She required 50 units of insulin a day with a food intake of 1,800 calories. During the past three years she has not gained weight, owing to a highly fastidious appetite, but, just as in the other two cases, she has had insulin reactions and we have been able to add 30 grams of carbohydrate to her diet. The insulin dosage in this case has been cut to 40 units.

In all of these cases the patients have remained sugar free for three years. We have not experienced any gain in tolerance like those cited

above in patients, who although taking insulin have a great deal of sugar in the urine. The experience of others may differ from ours. If one of the causes of diabetes is overwork of the islet cells, and there is reason to believe that this is the case, then it is far better treatment to keep patients sugar free when they are receiving insulin. If, through the proper balancing of insulin and diet, the islet cells, after months or years regain their ability to produce insulin, then it would seem that it is just as important to keep patients sugar free now as was before the advent of insulin. In other words, remove the strain on the islet cells and they gain in function. We now believe that insulin has enabled us to partially cure diabetes, and it may be that the future will show that these same cases which I have cited will be able to live without insulin, or on very small doses. Many mild cases are able to discontinue the use of insulin after a few months, but we have noted that when there are indiscretions in diet and sugar appears in the urine, the patients must again resume the use of insulin.

LIMITATIONS OF INSULIN

It is not possible to imitate with a hypodermic needle the automatic regulation of insulin secretion which operates in the normal individual. The evidence is strong that the rise in the blood sugar which follows each meal is the stimulus for insulin secretion. If we could know what the blood sugar is at at any moment of the day we could more accurately determine the size of the insulin dose and the proper time of administration. Any rules laid down here are drawn from our experience with the average patient. The application of these rules to the individual case may not result satisfactorily. The Toronto observers have recommended that insulin be divided into three equal doses and given one-half hour before each meal. This method has not produced satisfactory results in our hands. Time and again patients have sugar during the morning hours, that is from 6 a. m., to 10 or 11 a. m., and then are sugar free the remainder of the day. Because of this fact, it has been our custom to give a larger dose of insulin in the morning and to give this dose as much as an hour before breakfast. In most cases we have seen the sugar appear in the urine before the patient eats the first meal. It has been found by ourselves and others, that the noon dose may be omitted and, in the majority of cases, the second dose may be given about one hour before the evening meal. If, under these conditions, the patient is having sugar in the early morning hours followed by an insulin reaction at 11 or 12 o'clock, it is our custom to give a small dose just as late at night as possible, in order to keep the morning blood sugar under control until the first large dose is administered.

TABLE 1.

Time of administration and division of total 24-hour dose.

Units	7 A. M.	5 P. M.	10:30 P. M.	12:00 M.
10	10	....	....	....
20	20	....	....	....
30	20	10	....	....
40	25	15	....	....
50	25	15	10	....
60	30	20	10	....
70	35-40	20-25	10	....
80	40-45	25-30	10	....

Table 1 shows the usual division of the dose of insulin. This method is not peculiar to our own clinic, but is used in many others. Often patients have insulin reactions at one time and sugar in the urine at another time during the day. Under these circumstances it is best to collect the urine in three or four hour periods and determine at what time sugar is excreted. The insulin dose which is to control this glycosuria should be administered at least an hour preceding the beginning of sugar excretion. After the insulin administration has been satisfactorily arranged, the patient may remain sugar free for a time, but we cannot be assured that he will continue so indefinitely. We have seen patients who after continuing for a year on one satisfactory arrangement require a readjustment of the size of dose and time of administration to prevent glycosuria or insulin reactions. An example of this is a patient who kept sugar free when given insulin in the following doses:

7:00 A. M. ..... 25 units
5:00 P. M. ..... 15 units
10:50 P. M. ..... 10 units

This arrangement remained satisfactory for one year, then rather suddenly she began to have insulin reactions at 2 o'clock in the morning and sugar was always present in the later morning hours. One could not give the dose later at night without an insulin reaction. A satisfactory arrangement was as follows:

5:30 A. M. ..... 20 units
11:00 A. M. ..... 15 units
5:00 P. M. ..... 10 units

We have had no fatalities from insulin reaction. It is only when the 24-hour dose of insulin amounts to more than 20 units that any serious reactions are apt to occur. It is of value that each patient have a slight reaction at some time in order that he may know what an insulin reaction is. After a reaction has once been experienced there is little difficulty in recognizing it again. Some form of sugar, such as orange juice, is taken when prodromal symptoms are felt. However, it is possible for a patient to become mildly delirious and not capable himself of taking carbohydrate. To our minds the gravity of insulin reactions has been rather over emphasized. The excessive gain in weight which may follow the use of insulin is of much more serious import.

Beaumont Bldg.

DIET RICH IN LIVER IN TREATMENT OF PERNICIOUS ANEMIA

Of the 105 cases reported on by George R. Minot and William P. Murphy, Boston (*Journal A. M. A.*, Sept. 3, 1927), ninety were placed on the diet at a time when the counts of their red corpuscles were below 2,700,000 and averaged 1,480,000 per cubic millimeter, and the other fifteen commenced the diet when their red blood cell counts were above 2,800,000 per cubic millimeter. In almost all instances the response to feeding liver was prompt, and the patients rapidly became better. Their blood has remained, with few exceptions, in very satisfactory condition. All the patients are living except three. One died from an unknown cause about four months after commencing the diet, with marked degeneration of the spinal cord. His red blood cell count was 4,300,000 per cubic millimeter a month before death. Another, whose blood had improved less than that of any other patient in the series, died at the age of 71 from cerebral thrombosis fifteen months after he began with the diet. The third patient, after eating liver daily for two years, was killed in an automobile accident. Her red blood cell count had risen promptly and remained above 4.5 million per cubic millimeter to the time of the last count, made two weeks before her death. The diet taken by the 105 patients includes, besides large amounts of liver (200± Gm. cooked weight a day), generous amounts of fruits and vegetables, containing especially from 5 to 10 per cent of carbohydrate, and red muscle meat. It was advised that the diet contain less than 70 Gm. of fat, little sugar, and that concentrated carbohydrate food and milk never be included to the exclusion of desired foods. Cooked liver may be served in any way that pleases the patient, but prolonged boiling is to be avoided. The broth in large amounts is effective. Mammalian liver is possibly more effective for these patients than that of fowl. Kidneys can also promptly increase the reticulocytes and numbers of red blood cells in pernicious anemia, and thus may be substituted for liver. Raw liver is perhaps more efficacious than cooked. It may be given as finely divided liver pulp. Many patients have preferred raw liver pulp to cooked liver, as they look on it more in the nature of medication than food. This is because it is simple to take and can be rapidly swallowed. The authors have prescribed often about 180 Gm. of the prepared pulp (about equal to a similar amount of cooked liver) a day, divided into two portions and taken mixed with orange juice or water, midmorning and midafternoon. This requires the patient to drink only about 500 cc. of the mixture a day. The juice pressed from raw liver is efficacious in large amounts. The possibility of infection with parasites seems remote. If necessary, liver may be administered by a stomach tube. Very sick patients so treated have shown a remarkable and rapid improvement. The problem of how much liver the patient should continue to eat after his red blood cell count is normal remains unsolved. Under these circumstances, some have taken only 150 Gm. three times a week. It appears, however, that some patients require more than others to keep them in the best condition. Perhaps an excess of liver or fraction of it can undesirably force the delivery of cells from the marrow, and hemoglobin formation may fail to keep pace with cell production. The first patients treated often took 120 or more grams of red muscle meat a day. Many have taken much less. However, it seems wise that the patients include in their diet at least a liberal amount: 70 Gm. a day. It is advised that fruits and green vegetables be prescribed in generous amounts, and if gastro-intestinal symptoms demand it, strained or in the form of a puree. Excess of fat will not inhibit a rapid growth of red blood cells in pernicious anemia. In large amounts it may upset the digestion, cause undesirable gain of weight, and for theoretical reasons it may be harmful for patients with pernicious anemia. Thus fat, perhaps, should be taken moderately, except by thin individuals. Sweet and soggy starch foods often intensify colonic indigestion, a condition frequently present, and as they have no particularly favorable effect on blood formation, they should be curtailed. The diet for each patient should be prescribed for that given person and must contain large amounts of liver or its equivalent and foods to supply liberally, but not excessively, all the requirements of the body. Successful treatment demands caring for the patient—not prescribing for his case. In the cases analyzed, symptomatic improvement has been marked. Appetite has improved rapidly and gastro-intestinal symptoms have decreased quickly. The tongue has often become normal in appearance. However, achlohydria has persisted in the eighteen patients examined. Improvement in neural symptoms has been most gratifying to the patient, and such symptoms have not definitely progressed or developed under adequate dietary treatment.

RADIUM IMPLANTATIONS IN ESOPHAGEAL CANCER

Joseph Muir, in Laryngoscope, September, 1927, says:

Cancer of the esophagus is generally regarded as the most hopelessly incurable of malignant lesions. None of the forms of treatment which have proved successful in combating cancer elsewhere in the body have heretofore been possible of application to the esophagus. Radium has been even less beneficial than surgery. Three prime drawbacks to this use of radium have always existed; first, the difficulty of placing it accurately; second, the practical impossibility of maintaining it in position long enough to be effectual, and third, the great danger of burning the tissues, which will induce sloughing and fistula into the mediastinum—invariably a fatal accident.

To obviate these difficulties the author has elaborated a technique of radium implantation through a specially designed esophagoscope which can be readily carried out by anyone experienced in the use of this type of instrument. The field of operation is illuminated and an implanter passed through the tube, so that each radon seed may be placed in full view, and the entire lesion accurately mapped out and evenly implanted. The radioactive center employed is a removable platinum radon seed, which offers the double advantage of being so screened that it will not induce necrosis, and the possibility of removal by means of an attached thread so that no foreign bodies are left in the tissue after the contained radium emanation has entirely decayed. The entire procedure is facilitated if done under the fluoroscope, though this is not absolutely essential.

The results in the small series of cases so far treated by this method have been highly gratifying, and although no permanent results can be reported before the lapse of five years, the author feels that the method merits a wide trial, even if it proves to do no more than prolong lives which otherwise will be very shortly terminated.

WHEN PETE'S WIFE BROKE HER LEG

This young Texas cowboy had spent his life on the Western range. His were the instincts of the cattle man, his the experiences of one who rides behind the long horn through all the seasons. Cows were his life, and all he knew that was of any account was his knowledge of cows.

And then he got married. He brought home a wife from the neighboring county where he had gone to ride in a rodeo, and he exhibited his female with all the pride and gusto of the male of the species. And they got along fine. Every one that saw them told of their devotion and their happiness. There was not a cloud on their horizon, it seemed, and the whole world smiled at them.

But one day the young bridegroom came rushing over to the ranch-house of his nearest neighbor, and there were tears streaming down his cheeks, sobs fairly bursting his breast, and he dropped onto the neighbor's porch manifesting every emotion that spelled distress in large letters. The shocked neighbor came running to him, raised his head, and inquired the trouble.

Pete sobbed. "It's the wife," he finally gulped out. "She fell down stairs this morning and broke her laig, and Oh! How I hated to shoot her!"—*Patchwork.*

Society Proceedings

ADAMS COUNTY MEDICAL SOCIETY

November 12, 1927 the regular monthly meeting of the Council was held at the Elks' Club, Quincy, with 8 members in attendance.

The plans for the big meeting on November 14 were discussed in a general way. Dr. Wells reported for the committee that was appointed to investigate a newspaper advertising campaign for the society and asked for more time before making a final report. Dr. Wells made a motion that the December meeting of the council be dispensed with unless such meeting was thought advisable by the President and Secretary. Dr. Bitter discussed applications for membership in the society. Dr. Center made a motion that the qualified applications for membership be investigated by the Board of Censors with the President of the society as ex-officio member of that committee. Dr. Bitter brought up the matter of physicians making free examinations of members of the Quincy Y. M. C. A. Dr. Wells made a motion that the Council not approve of the members of the Adams County Medical Society making free examinations of the Quincy Y. M. C. A. members, except in indigent cases. Dr. Center made a motion that Dr. Bitter be instructed to inform the Y. M. C. A. officials that they give their members a physical examination card and ask them to take this to their family physician in order that the proper physical examination be made.

November 14, 1927. This was the annual all-day meeting of the Adams County Medical Society. At 8:00 A. M., 23 Quincy physicians gave a breakfast at the Hotel Quincy to our distinguished guests, Dr. J. N. Jackson, President of the American Medical Association, of Kansas City, Dr. R. L. Sutton, Professor of Dermatology, University of Kansas School of Medicine and Dr. W. W. Duke, former Professor of Experimental Medicine, University of Kansas School of Medicine.

At 9:20 A. M. at the Elks' Hall the President of the society called the meeting to order and Honorable Charles L. Weems, Mayor of Quincy, welcomed the visiting physicians to our city. Dr. W. W. Duke gave an interesting address on the Anemias, illustrating his talk with one case of pernicious anemia. Dr. R. L. Sutton conducted a clinic on dermatology and showed about 20 patients suffering from different skin lesions. Dr. J. N. Jackson gave a very interesting talk on Tumors of the Breast and showed one clinical case.

At 12:00 noon the visiting physicians had luncheon

with the members of the Quincy Kiwanis, Rotary, Lions and Exchange Clubs at the Elks Restaurant and there was a total of 215 present. After the announcements by the various club Presidents the meeting was turned over to Dr. Swanberg, who introduced a number of visiting physicians together with the officers of the society and finally our distinguished guests, Drs. J. N. Jackson, R. L. Sutton and W. W. Duke, each responding with very appropriate talks applicable to a lay audience.

At 2:05 P. M. the Scientific session was again called to order and Dr. W. W. Duke gave a very classical address on "Allegry" in all of its various manifestations. The discussion of this paper was led by Dr. Frank Cohen and was further discussed and questions asked by a large number of physicians. Dr. R. L. Sutton then gave a very interesting talk on the "Diagnosis and Treatment of Cancer of the Skin," which was illustrated by numerous lantern slides. The discussion was opened by Dr. J. R. Pollock followed by a number of other physicians. Dr. J. N. Jackson then gave a very fine address on "Acute Gangrenous Retrocecal Appendicitis." The discussion was opened by Drs. W. W. Williams and H. J. Jurgens, followed by numerous other physicians. The meeting did not adjourn until about 5:45 P. M.

At 6:15 P. M. a banquet was served at the Elks Club Restaurant and Dr. C. D. Center again demonstrated his ability as an excellent Toastmaster. Dr. J. N. Jackson, Dr. W. W. Duke, Dr. R. L. Sutton of Kansas City, Dr. E. S. Smith of Kirksville, Mo., Harold M. Camp of Monmouth, Ill., Dr. E. P. Coleman of Canton, Ill., and Dr. Harold Swanberg responded to toasts.

At 8:00 P. M. the members adjourned to the lodge room of the Elks where Dr. R. L. Sutton gave a very interesting discussion on his adventures of hunting tiger in Southern Asia, which was illustrated by 300 lantern slides. At the conclusion of this lecture about 50 physicians were the guests at a Stag Party and Smoker at the residence of the Secretary of the society.

At least 150 attended the scientific sessions.

HAROLD SWANBERG, M. D.
Secretary.

BUREAU COUNTY

The fall meeting of the Bureau County Medical Society was held November 10 at St. Margaret's hospital in Spring Valley. Dinner was served at 12:30 at the hospital by courtesy of Mother Superior Magdalene. Following the dinner a business session was held and at two o'clock the scientific program was given as follows:

"Toxemias of Pregnancy"—Dr. F. L. Heinemeyer, Rockford. Discussion led by Drs. Miltenberger and Scanlon.

"Fractures"—Dr. Henry Bascom Thomas, Chicago. Discussion led by Drs. Moran and Kirby.

This program is in line with that being planned by the Scientific Service Committee of the Illinois State Medical Society whereby each county medical society will make a study of obstetrics. A medical speakers' bureau has been arranged and thus it is possible to bring the latest and best information on maternal and child care to doctors over the state. The Society is doing this in the face of a proffered federal subsidy, recently refused, whereby under the Shepherd-Towner act such medical information would come under federal supervision and control. The Society believes that the statewide cooperative movement, as planned, will be more effective than a federal bureaucratic measure and without cost to the taxpayer.

COOK COUNTY

Regular Meeting, November 16, 1927.

1. Preliminary Report. Transplantation of the Urether. Lantern Slide Demonstration.
   .....Charles Morgan McKenna
2. The Myth of So-Called Catheter Cystitis.
   .....Hugh Cabot, Ann Arbor, Michigan.

Discussion .....Frank Phifer, Vincent J. O'Conor
Chicago Medical Society.

Symposium on Poliomyelitis, November 9, 1927.

1. Clinical Manifestations in Children.
   .....George W. Baxter
2. The Diagnosis and the Manifestations of the Disease in Adults.....Peter Bassoe
3. The Treatment of Poliomyelitis..Archibald Hoyne
4. Orthopedic Treatment of Infantile Paralysis.
   .....E. W. Ryerson

Discussion.

Regular Meeting, November 30, 1927.

1. The Relation of the Medical School to the Profession—Irving S. Cutter, Northwestern University Medical School.
2. The Relation of the Medical School to the Community—Franklin S. McLean, University of Chicago Medical Department.

Discussion—H. A. McGuigan, University of Illinois College of Medicine.
L. D. Moorhead, Loyola University College of Medicine.

Marriages

LEROY E. ELLISON, Vermont, Ill., to Miss Rose B. King, at St. Louis, October 19.

THOMAS EUGENE KEAVENY, Keithsburg, Ill., to Miss Lenore Florentine Lane of Cascade, Iowa, in Omaha, October 23.

RICHARD K. KIMMEL, Decatur, Ill., to Miss Melba Mauer of St. Louis, October 10.

Personals

Dr. Gustavus M. Blech has been reappointed colonel in the medical officers' reserve corps of the army.

Dr. Albert N. Mueller has been appointed city

physician of Rock Island to succeed the late Dr. Joseph R. Hollowbush.

Dr. Ethel R. Harrington has been appointed to the staff of the division of child hygiene and public health nursing of the state department of health.

Dr. Elmer B. Coolley, Danville, was elected president of the Illinois Tuberculosis and Health Association, October 25, to succeed Dr. John P. Denby, Carlinville.

Among others, Dr. Alfred P. Solomon addressed the Chicago Neurological Society, November 17, on "Case of Periodic Somnolence: Report of Study and a Major Operation Under Hypnosis."

Among others, Drs. Edmund Andrews and William A. Thomas addressed the Chicago Society of Internal Medicine, City Club, November 28, on "Mechanism of Nephritis."

Dr. Earle H. Thomas was elected president of the American Society of Oral Surgeons and Exodontists at the annual meeting, recently, in Detroit, and Elmer C. Hume, D.D.S., Louisville, Ky., was made president-elect.

Dr. C. Macfie Campbell, professor of psychiatry, Medical School of Harvard University, Boston, delivered the eighth Pasteur lecture (illustrated) before the Institute of Medicine of Chicago at the City Club, November 18, on "Some Problems of the Functional Psychoses."

Dr. Carl H. Davis, Milwaukee, gave a motion picture demonstration before the Chicago Gynecological Society at 50 East Erie Street, November 18, on "Management of Labor," and Dr. Jacob L. Bubis, Cleveland, read a paper on "Gyneplastic Repairs of Old Lacerations Following Childbirth."

Dr. Nathan P. Colwell, secretary of the Council on Medical Education and Hospitals of the American Medical Association, addressed a staff meeting of the St. Vincent's Hospital, Toledo, Ohio, September 29, at a dinner, on advances in the education of interns.

Dr. Sven Ingvar, docent in neurology, University of Lund, Sweden, lectured, November 16-17, at the University of Chicago Clinic, under the joint auspices of the Institute of Medicine of Chicago and the department of neurology of the university on "The Cerebellum: Anatomic and Clinical Studies."

A dinner was given by members of the Chicago Medical Society at the Stevens Hotel, November 16, in honor of Dr. Hugh Cabot, dean, University of Michigan Medical School, Ann Arbor, preceding his address before the society; Dr. Cabot in the afternoon addressed the Medical History Society at the University of Illinois College of Medicine.

Dr. Julius H. Hess addressed the Chicago Tuberculosis Society, November 17, on "Some Phases of Tuberculosis Work Seen in Scandinavia"; Dr. Benjamin Goldberg, "The Changing Picture in Childhood Tuberculosis," and Dr. Simon L. Berman, "Tuberculin Diagnosis with Special Reference to Pirquet."

Judge Henry M. Walker addressed the Physicians Fellowship Club, Chicago, November 4, on "Courts, Crime and Psychiatry," with special reference to the advisability of sterilization.

News Notes

—The Chicago Pediatric Society met at the Children's Memorial Hospital, 715 Fullerton Avenue, November 15, where the members of the staff conducted a clinical program.

—A memorial paper to the late Dr. Joseph R. Hollowbush was presented to the Rock Island County Medical Society, November 8, by Dr. George L. Eyster. The society was addressed by Dr. Jacob Meyer of Chicago on "Nephritis," and by Dr. George D. Hauberg, Moline, on "Diabetic Coma."

—Northwestern University Medical School issued invitations to a convocation at the Archibald Church Library, Ward Memorial Building on the McKinlock Campus, November 4, in honor of the presentation of the cross of the legion of honor awarded by the French government to Dr. Isaac A. Abt.

—The Norbury Sanatorium, Jacksonville, announces a program of expansion representing an investment of about $100,000 and including the construction of a fireproof addition with a capacity of twenty patients, making the total capacity 120; the sanatorium has a department for women known as Maplecrest just outside the city limits and surrounded by 31 acres of landscaped grounds.

—A jury in Judge Feinberg's court, November 20, found Mrs. Lucy Hagenow guilty of having performed an illegal operation on a girl who

died later. Mrs. Hagenow was sentenced to fourteen years in prison on a charge of manslaughter; she has served two terms in prison for similar offenses, having been convicted in 1898 and again in 1908, and has been acquitted of similar charges in other trials. She is now 82 years of age.

—Mayor William Hale Thompson has appointed Dr. Arnold H. Kegel health commissioner of the city of Chicago to succeed Dr. Herman N. Bundesen, who has held that position for more than five years. Dr. Kegel graduated at Loyola University School of Medicine in 1916 and from 1917 to 1921 was at the Mayo Foundation and Clinic, Rochester, Minn. He is now practicing surgery in Chicago as a member of the Storer, Kegel and Brock Clinic. He is chairman of the medical section of Mayor Thompson's Flood Control Conference.

—Col. Robin W. C. Francis, superintendent of the Speedway Veterans' Bureau Hospital in Maywood, announced, November 9, that he is resigning because of ill health. It is reported that Drs. Walter Rapaport and Arthur Lederer have also resigned from the staff of the hospital. The newspapers noted, November 15, that several physicians on the staff of the hospital had been suspended for ninety days without pay for their alleged connection with the sale of liquor prescriptions which has been under investigation.

—The Illinois Society for Mental Hygiene announces a monthly lecture course on the mental hygiene of the child to be given at the City Club. Tickets may be purchased at the office of the society, 203 North Wabash Avenue, for $5, and by members for $3. The lecture, November 8, was given by Dr. Edwin R. Eisler, Minneapolis, on "Emotional Life of the Child"; December 6, by Dr. Esther L. Richards, Baltimore, on "Parent-Child Relationships"; January 10, by Claudia Wanamaker, on "Recreation as a Mental Hygiene Measure"; February 14, by Dr. William Healy, on "The Home in Relation to Child Delinquency"; March 13, by Dr. Harold Douglas Singer, on "Adolescence"; April 10, by Thomas D. Eliot, on "Mental Hygiene and the College Student," and Dr. Lewis J. Pollock, on "The Mental Hygiene Approach."

—Seventy-five persons representing practically every organization in the community attended a dinner at the Lincoln State School and Colony, Lincoln, November 14, at which the president of the Logan County Medical Society, Dr. Anthony M. Drummy, Lincoln, was toastmaster, and the principal speaker, Dr. Alexander S. Hershfield, state alienist. Dr. Hershfield presented a program entailing the organization of a consulting staff of local physicians in each community where a state hospital is located, and the establishment of various clinics in the hospitals for the better study and care of patients. He pointed out that Illinois gives its patients the best custodial care of all the states; that the development of psychiatry is well operated and the mental side of institutional care properly emphasized, but that there still needs to be more general medical assistance, more attention paid to the physical condition of patients, and more study that may well furnish some explanation of mental difficulties. To accomplish this, greater cooperation with general practitioners and all types of specialists outside the institution is desirable. The plan for a better cooperative effort was endorsed at the dinner. Other speakers included the managing officer of the Lincoln State School, Dr. Christian H. Diehl, Effingham, Judge Lindley, Judge Stringer, Rev. W. C. Lloyd, representatives of the Woman's Club, the press, Rotary, Kiwanis, the Parent-Teacher Association, the Association of Commerce and other organizations.

—At the request of the health commissioner of Chicago, the finance committee of the city council voted funds for a survey of health conditions among the negroes. The work, which began May 2 and was completed July 29, was conducted under the direction of Dr. Harrison L. Harris, Jr., and an advisory committee of eighteen under the chairmanship of Isidore S. Falk, Ph.D. A fact brought out in the report, the health commissioner states, is that the negro death rate in Chicago is twice that of the city as a whole; it is said to be 22.8 per thousand for the negroes, while the negro infant mortality is 94.7 per thousand live births. These rates are figured on the basis of a negro population of 160,000 for 1926 and a total population for Chicago of 3,048,000. The largest loss of life among negroes is from tuberculosis, pneumonia and diseases of infancy. The comparative rates for tuberculosis among the white and black races were 58.5 and 348.5, respectively; pneumonia, 88.8 and 114.7, respectively, and diseases of infancy, 64.6 and 94.7, respectively. The report of the survey states that communties in which the negroes reside in larg-

est numbers are poor in health agencies, while some institutions in these communities do not extend their services to negroes. Furthermore, there is a wide variation in efficiency in the contagious disease control work in the public schools and a closer supervision seems necessary. Further standardization of results of examinations of the school children is urged in the report as well as a more extensive correction of defects, more positive health teaching and the extension of facilities to care for the school child. It is also said that a careful examination should be made of the basis on which the services are being rendered to the negro by the hospitals of Chicago.

—Next annual Clinical Congress of the American College of Surgeons will be held in Boston, October 8-12, 1928.

—At the regular monthly meeting of Union County Medical Society November 10, Dr. Don Deal, of Springfield discussed "The Acute Abdomen" and Dr. A. E. Rives, of East St. Louis discussed obstetrical problems, particularly "Breech Presentation" and "Hemorrhage." Physicians from Jackson, Perry, Williamson and Pulaski were visitors.

—The Illinois Trudeau Society, on invitation of the Morgan, Scott, Pike, Cass and Greene County Medical Societies, held its winter meeting at Jacksonville on Thursday, November 10, 1927. The meeting was very well attended by physicians throughout the State. Papers were read by Doctors Carl A. Hedblom, George Gelhorn, Hermon H. Cole and Edward A. Oliver. Doctor Robert H. Hayes of Chicago was elected president for the coming year, Doctor William Newcomb of Jacksonville, vice-president, and Doctor W. C. Martini of Springfield was re-elected secretary-treasurer.

—The fifty-third annual meeting of the Southern Illinois Medical Association was held in Murphysboro November 3rd and 4th. The membership is composed of physicians in the ninth and tenth Councilor Districts. About 125 physicians attended the sessions. The new officers are: President, Dr. F. H. Gunn, East St. Louis; first vice-president, Dr. A. R. Carter, Murphysboro; second vice-president, Dr. R. F. Lischer, Macoutah; secretary-treasurer, Dr. W. J. Benner, Anna; assistant secretary, Dr. Marshall W. Hall, Mt. Vernon. Place of meeting next year is Mt. Vernon.

Deaths

WILLIAM A. BOYD, Milwaukee, Wis.; University of Louisville, Ky., 1853; a Civil War veteran and practitioner for many years in Rockford; since 1923 in Soldiers Home as result of fractured hip; aged 86; died in that institution, October 21.

ANSON R. BRACKETT, Chicago; Medical College of Ohio, Cincinnati, 1880; aged 72; died, October 28, of chronic nephritis.

MARTIN RIST CHASE, Chicago; Northwestern University Medical School, 1912; a veteran of the World War, serving with Base Hospital 12 in France and being promoted to rank of Major, 1917-1919; associate professor of medicine in Northwestern University Medical School; staff of Wesley and Cook County hospitals; member of numerous clubs and fraternities; aged 41; died at Wesley hospital, November 2, of lobar pneumonia.

ALEXANDER CAIRD, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; aged 84; died, October 14, of cerebral hemorrhage.

JOSEPH ELLIOTT COLBURN, Chicago; Albany (N. Y.) Medical College, 1877; formerly on the staffs of the Cook County Hospital and the Illinois Eye and Ear Infirmary; Prof. of ophthalmology in the Chicago Polyclinic, and in the Chicago Eye, Ear, Nose and Throat Hospital. Dr. Colburn was the author of a book of clinical lectures on diseases of the eye and of monographs on diseases of the eye and allied subjects. He was a member of the Chicago Medical Society, American Academy of ophthalmology, Ex-pres. of the Western Soc. Ophthalmology; ex-vice pres. of the Chicago Society of Artists, and a member of the Cliff Dwellers; aged 74; died, October 27, at Winthrop Harbor, Ill., of cerebral hemorrhage.

DOLPH CONOVER, Flat Rock, Ill.; Hospital College of Medicine, Louisville, Ky., 1898; aged 52; died, November 11, of tuberculosis.

ANDREW JOHNSON, Moline, Ill.; University of Nebraska College of Medicine, Omaha, 1890; formerly superintendent of the Norfolk (Neb.) State Hospital; aged 67; died, October 15, in Indianapolis, of heart disease.

ARVID MITCHELL KRUEGER, Chicago; Rush Medical College, Chicago, 1925; a Fellow, A. M. A.; aged 26; was found dead, October 18.

JOHN POMFRET LONG, Astoria, Ill.; Chicago Homeopathic Medical College, 1903; lieutenant in medical corps; served in Embarkation hospital, Newport News, in World War; aged 51; died October 17 at a sanitarium in Peoria.

LUTHER HOWARD MALONEY, Savanna, Ill.; General Medical College, Chicago, 1884; aged 70; died August 10 of carcinoma of the stomach.

YSABEL G. RICHMOND, Chicago; General Medical College, Chicago, 1895; many years on staff of Daily News Fresh-Air Fund; aged 70; died November 10, of coronary thrombosis.

MARY WARD MEAD, Augusta, Ill.; College of Physicians and Surgeons, Keokuk, 1897; aged 55; died October 16.

er, 1927

rsity of
d prac-
1923 in
ged 86;

lege of
28, of

n Uni-
World
ce and
sociate
Med-
y hos-
nities;
lobar

of Ec-
ed 84;

N. Y.)
of the
l Ear
nicago
e and
of a
nd of
jects.
ciety,
f the
f the
Cliff
Har-

ge of
No-

Ne-
nerly
ital;
heart

dical
26;

neo-
dical
ews.
ani-

eral
gust

ical
aily
10,

hy-
ied

P
c
T
g
fa
tr
A
in
d
w
M
by
st
lu
po
th

Product and Policy

BETTER BABIES

RESPONSIBILITY in infant feeding necessitates unmolested control of the diet.

That Mead's Dextri-Maltose, cow's milk and water has given good results over a period of years in feeding the majority of infants is due to the policy that entrusts its indication and the control of its use to the doctor alone.

And so it has become known among physicians as a dependable infant diet material to be used in cases where gains in weight are desired, where nutritional disturbances are to be avoided, or where tolerance for sugars has been lowered.

Mead's Dextri-Maltose is the result of a natural conversion, i. e., by the action of the enzymes of pure barley malt upon cereal starch. It is to be used with a natural food, cow's milk diluted with water which can only be prescribed in the proper proportions by the doctor who has a knowledge of the individual infant in his care.

THE MEAD POLICY

MEAD'S Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

DOCTORS will be furnished with an ample supply of samples for use in their practice.

Mead Johnson & Co.

Evansville, Indiana, U. S. A.

When Minutes Count

and the heart and respiration need support, you cannot afford to experiment

CORAMINE, "CIBA"

(not a synthetic camphor)

is designed to meet this urgent need. It stimulates forcefully the heart and respiratory center, promptly, efficiently; and its effect is prolonged.

Ampules for subcutaneous, intramuscular and intravenous injection, in emergency; 5, 20, and 100 in a package. *Liquid* for oral use, in 15 c.c. bottles, for the after-treatment. DOSE: 1 or 2 ampules hypodermically, 1 or 2 c.c. in water by mouth, as often as indicated. In emergency the dose may be doubled. Have you received a copy of "Cardiac and Respiratory Stimulation"?

CIBA COMPANY, Inc., Cedar and Washington Sts., New York City

Canada: Ciba Company Ltd., 146 Saint Peter Street, Montreal

NOW OPEN

CHICAGO SANITARIUM

1919 Prairie Ave.

Phone Victory 5600

Limited to Nervous and Mental Diseases

Modern in the way of case study and therapeutic management; newer methods of therapy intelligently applied with your sanction.

An interesting feature of the Sanitarium is its Serological laboratory; spinal fluid carefully and completely studied from all angles. Facilities for keeping serological patients over night following puncture.

A fundus ophthalmoscopic examination is done routinely in every case punctured.

Physicians are invited to visit the Sanitarium at any time.

A. B. MAGNUS, M. D., Director **M. H. MAGNUS, Laboratory Charge**